

## STRUCTURE SEARCH PART 1

=> fil reg; d stat que l6; d que l23; fil capl; d que nos l25  
 FILE 'REGISTRY' ENTERED AT 16:04:33 ON 12 JAN 2009  
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STRUCTURE FILE UPDATES: 11 JAN 2009 HIGHEST RN 1093181-04-4  
 DICTIONARY FILE UPDATES: 11 JAN 2009 HIGHEST RN 1093181-04-4

New CAS Information Use Policies, enter HELP USAGETERMS for details.

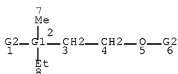
TSCA INFORMATION NOW CURRENT THROUGH July 5, 2008.

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 conducting SmartSELECT searches.

REGISTRY includes numerically searchable data for experimental and  
 predicted properties as well as tags indicating availability of  
 experimental property data in the original document. For information  
 on property searching in REGISTRY, refer to:

<http://www.cas.org/support/stngen/stdoc/properties.html>

L3 STR



VAR G1=N/P  
 VAR G2=ME/ET  
 NODE ATTRIBUTES:  
 DEFAULT MLEVEL IS ATOM  
 DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:  
 RING(S) ARE ISOLATED OR EMBEDDED  
 NUMBER OF NODES IS 8

STEREO ATTRIBUTES: NONE  
 L6 54 SEA FILE=REGISTRY SSS FUL L3

100.0% PROCESSED 554941 ITERATIONS 54 ANSWERS  
 SEARCH TIME: 00.00.05

L23 123813 SEA FILE=REGISTRY SPE=ON ABB=ON LI/ELS

FILE 'CAPLUS' ENTERED AT 16:04:34 ON 12 JAN 2009  
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FILE COVERS 1907 - 12 Jan 2009 VOL 150 ISS 3  
 FILE LAST UPDATED: 11 Jan 2009 (20090111/ED)

Caplus now includes complete International Patent Classification (IPC) reclassification data for the third quarter of 2008.

Effective October 17, 2005, revised CAS Information Use Policies apply. They are available for your review at:

<http://www.cas.org/legal/infopolicy.html>  
 'OBI' IS DEFAULT SEARCH FIELD FOR 'CAPLUS' FILE

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=> d que nos 134; d que nos 135; d que nos 124
L3          STR
L6          54 SEA FILE=REGISTRY SSS FUL L3
L15         149 SEA FILE=CAPLUS SPE=ON  ABB=ON  L6
L31         92 SEA FILE=CAPLUS SPE=ON  ABB=ON  L15 AND PATENT/DT
L33         57 SEA FILE=CAPLUS SPE=ON  ABB=ON  L15 NOT L31
L34         8 SEA FILE=CAPLUS SPE=ON  ABB=ON  L33 AND FY<2003

L3          STR
L6          54 SEA FILE=REGISTRY SSS FUL L3
L15         149 SEA FILE=CAPLUS SPE=ON  ABB=ON  L6
L31         92 SEA FILE=CAPLUS SPE=ON  ABB=ON  L15 AND PATENT/DT
L35         6 SEA FILE=CAPLUS SPE=ON  ABB=ON  L31 AND (PD<20020828 OR
AD<20020828 OR PRD<20020828)

L23         123813 SEA FILE=REGISTRY SPE=ON  ABB=ON  LI/ELS
L24         382535 SEA FILE=CAPLUS SPE=ON  ABB=ON  L23

=> s (134,135) or (134,135 and 124)
L38         14 ((L34 OR L35)) OR ((L34 OR L35) AND L24)

=> d ibib abs hitstr 138 1-14

L38 ANSWER 1 OF 14 CAPLUS COPYRIGHT 2009 ACS on STN
ACCESSION NUMBER: 2004:183151 CAPLUS Full-text
DOCUMENT NUMBER: 140:245004
```

TITLE: Electric double-layer capacitor  
 INVENTOR(S): Sato, Takaya; Masuda, Gen; Kotani, Mitsugu; Iizuka, Shunsuke  
 PATENT ASSIGNEE(S): Nisshinbo Industries, Inc., Japan  
 SOURCE: PCT Int. Appl., 29 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004019356	A1	20040304	WO 2003-JP10630	20030822 <--
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RM: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
CA 2496544	A1	20040304	CA 2003-2496544	20030822 <--
AU 2003262276	A1	20040311	AU 2003-262276	20030822 <--
EP 1536440	A1	20050601	EP 2003-792799	20030822 <--
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
CN 1679126	A	20051005	CN 2003-820034	20030822 <--
US 20060176646	A1	20060810	US 2005-525201	20050222 <--
US 7342769	B2	20080311		
PRIORITY APPLN. INFO.:			JP 2002-243236	A 20020823 <--
			WO 2003-JP10630	W 20030822

OTHER SOURCE(S): MARPAT 140:245004

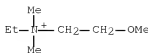
AB An elec. double-layer capacitor comprising a pair of polarized electrodes, a separator interposed between these polarized electrodes, and an electrolyte, wherein polarized electrodes used mainly contain active C having the peak of the pore diameter distribution of a micro-hole determined by an MP method within 4.0 + 10-10 to 8.0 + 10-10 m, and the electrolyte used contains an ionic liquid as an electrolytic salt, whereby providing an elec. double-layer capacitor being excellent in low-temperature characteristics and high in electrostatic capacity.

IT 88934-31-0

RL: TEM (Technical or engineered material use); USES (Uses)  
 (electrolyte containing; elec. double-layer capacitor with excellent low-temperature characteristics and high electrostatic capacity)

RN 88934-31-0 CAPLUS

CN Ethanaminium, N-ethyl-2-methoxy-N,N-dimethyl-, iodide (1:1) (CA INDEX NAME)



● I -

REFERENCE COUNT: 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L38 ANSWER 2 OF 14 CAPLUS COPYRIGHT 2009 ACS on STN  
 ACCESSION NUMBER: 2003:219445 CAPLUS Full-text  
 DOCUMENT NUMBER: 138:264314  
 TITLE: Active carbon for electrodes, polarizing capacitor electrodes, and double-layer capacitors  
 INVENTOR(S): Sato, Takaya; Masuda, Akira; Kotani, Yoshitsugu  
 PATENT ASSIGNEE(S): Nisshin Spinning Co., Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 15 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003086470	A	20030320	JP 2001-272868	20010910 <--
PRIORITY APPLN. INFO.:			JP 2001-272868	20010910 <--

OTHER SOURCE(S): MARPAT 138:264314

AB The title active carbon is prepared by (1) carbonizing 3D-crosslinked polycarbodiimide which is prepared by polymerization of compds. containing ≥3 isocyanates and (2) activating the polymer-carbonized carbon. The prepared active carbon provides the double-layer capacitors with increased dielec. capacitance in decreased activation duration in comparison to prior-art active carbon which is prepared from phenolic resins.

IT 464927-72-8P  
 RL: PNU (Preparation, unclassified); PRP (Properties); PREP (Preparation) (polycarbodiimide-carbonized active carbon and polarizing capacitor electrodes and double-layer capacitors having increased capacitance)

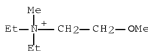
RN 464927-72-8 CAPLUS

CN Ethanaminium, N,N-diethyl-2-methoxy-N-methyl-, tetrafluoroborate(1-) (1:1) (CA INDEX NAME)

CM 1

CRN 464927-71-7

CMF C8 H20 N O



CM 2

CRN 14874-70-5

CMF B F4

CCI CCS



L38 ANSWER 3 OF 14 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2002:754338 CAPLUS Full-text

DOCUMENT NUMBER: 137:281869

TITLE: Ionic liquid, electrolyte salt and electrolyte solution for power storing device, double layer capacitor, and secondary battery

INVENTOR(S): Sato, Takaya; Masuda, Gen; Nodu, Ryutaro; Maruo, Tatsuya

PATENT ASSIGNEE(S): Nissinbo Industries, Inc., Japan

SOURCE: PCT Int. Appl., '72 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002076924	A1	20021003	WO 2002-JP2845	20020325 <--
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
CA 2441981	A1	20021003	CA 2002-2441981	20020325 <--
AU 2002239059	A1	20021008	AU 2002-239059	20020325 <--
EP 1380569	A1	20040114	EP 2002-705479	20020325 <--
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
CN 1503778	A	20040609	CN 2002-808669	20020325 <--
CN 101284790	A	20081015	CN 2008-10086503	20020325 <--
CN 101284791	A	20081015	CN 2008-10086504	20020325 <--
TW 591677	B	20040611	TW 2002-91105879	20020326 <--
US 20040094741	A1	20040520	US 2003-472823	20030925 <--
US 7297289	B2	20071120		
US 20070031729	A1	20070208	US 2006-537269	20060929 <--
US 7471502	B2	20081230		
JP 2007161733	A	20070628	JP 2007-61163	20070312 <--
JP 2007227940	A	20070906	JP 2007-61158	20070312 <--
KR 2008010467	A	20080130	KR 2007-730899	20071228 <--

KR 861916	B1	20081009		
KR 2008010468	A	20080130	KR 2007-730900	20071228 <--
KR 823972	B1	20080422		

PRIORITY APPLN. INFO.:

	JP 2001-87221	A	20010326 <--
	JP 2001-272834	A	20010910 <--
	CN 2002-808669	A3	20020325 <--
	JP 2002-576187	A3	20020325 <--
	WO 2002-JP2845	W	20020325 <--
	US 2003-472823	A3	20030925
	KR 2003-712571	A3	20030926

OTHER SOURCE(S): MARPAT 137:281869

AB The liquid is an onium salt R1R2R3R4X+.Y [R1-4 = C1-5 alkyl or RO(CH2)n, R = Me or Et, n = 1-4 integer, any 2 of R1-4 may join together to form a ring, ≥1 of R1-4 is RO(CH2)n, X = N or P, Y = monovalent anion] m. ≤50°. The electrolyte solution contains the ionic liquid as electrolyte salt dissolved in a nonaq. organic solvent. The electrolyte solution may also contain a Li salt. The power storing device is a double layer capacitor or a secondary battery using the electrolyte solution

IT 14283-07-9, Lithium fluoborate 90076-65-6  
 464927-72-8 464927-81-9 464927-82-0  
 464927-83-1 464927-84-2

RL: DEV (Device component use); USES (Uses)  
 (electrolyte solns. containing liquid ionic compds. for secondary batteries and double layer capacitors)

RN 14283-07-9 CAPLUS

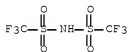
CN Borate(1-), tetrafluoro-, lithium (1:1) (CA INDEX NAME)



● Li+

RN 90076-65-6 CAPLUS

CN Methanesulfonamide, 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]-, lithium salt (1:1) (CA INDEX NAME)



● Li

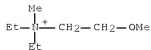
RN 464927-72-8 CAPLUS

CN Ethanaminium, N,N-diethyl-2-methoxy-N-methyl-, tetrafluoroborate(1-) (1:1) (CA INDEX NAME)

CN 1

CRN 464927-71-7

CMF C8 H20 N O



CM 2

CRN 14874-70-5

CMF B F4

CCI CCS



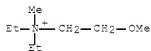
RN 464927-81-9 CAPLUS

CN Ethanaminium, N,N-diethyl-2-methoxy-N-methyl-, hexafluorophosphate(1-)  
(1:1) (CA INDEX NAME)

CM 1

CRN 464927-71-7

CMF C8 H20 N O



CM 2

CRN 16919-18-9

CMF F6 P

CCI CCS



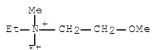
RN 464927-82-0 CAPLUS

CN Ethanaminium, N,N-diethyl-2-methoxy-N-methyl-, salt with  
trifluoromethanesulfonic acid (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 464927-71-7

CMF C8 H20 N O



CM 2

CRN 37181-39-8

CMF C F3 O3 S



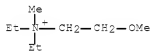
RN 464927-83-1 CAPLUS

CN Ethanaminium, N,N-diethyl-2-methoxy-N-methyl-, 2,2,2-trifluoroacetate  
(1:1) (CA INDEX NAME)

CM 1

CRN 464927-71-7

CMF C8 H20 N O



CM 2

CRN 14477-72-6

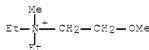
CMF C2 F3 O2



RN 464927-84-2 CAPLUS  
 CN Ethanaminium, N,N-diethyl-2-methoxy-N-methyl-, salt with  
 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]methanesulfonamide (1:1) (CA  
 INDEX NAME)

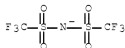
CM 1

CRN 464927-71-7  
 CMF C8 H20 N O



CM 2

CRN 98837-98-0  
 CMF C2 F6 N O4 S2



REFERENCE COUNT: 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS  
 RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L38 ANSWER 4 OF 14 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 1986:178322 CAPLUS Full-text

DOCUMENT NUMBER: 104:178322

ORIGINAL REFERENCE NO.: 104:28087a,28090a

TITLE: Ambient temperature plastic crystal fast ion  
 conductors (PLICFICS)

AUTHOR(S): Cooper, E. I.; Angell, C. A.

CORPORATE SOURCE: Dep. Chem., Purdue Univ., West Lafayette, IN, 47907,  
 USA

SOURCE: Solid State Ionics (1986), 18-19(1), 570-6

CODEN: SSIOD3; ISSN: 0167-2738

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Polymer-salt type solid electrolytes are currently in favor because the  
 electrolyte can change shape under mech. stress without failure. A  
 disadvantage, however, is that anion transport nos. are not zero. The former  
 advantage can be had without the latter disadvantage by using an appropriate

anion rotator phase in which the cation, or one of the cations, is mobile. Li2SO4 is the prototype material of this type but is limited to high temperature applications. A low temperature material, a double salt of LiBF4 and methoxyethyl-dimethylethylammonium fluoroborate, is described which may conduct by the same mechanism as Li2SO4 since it exhibits a strong disordering transition at -90°, and a relatively small entropy of fusion. At 75° this substance conducts almost as well as the best polyethylene oxide + Li salt combination reported to date. Some variants on the structural theme and their properties and performance are also described.

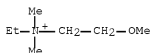
IT 88934-31-0 101853-28-5 101855-48-5  
101855-49-6 101897-63-6 101897-65-8  
101897-67-0 101897-70-5 101897-75-0  
101897-76-1

RL: PRP (Properties)

(elec. conductivity and thermal properties of)

RN 88934-31-0 CAPLUS

CN Ethanaminium, N-ethyl-2-methoxy-N,N-dimethyl-, iodide (1:1) (CA INDEX NAME)



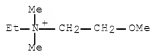
RN 101853-28-5 CAPLUS

CN Ethanaminium, N-ethyl-2-methoxy-N,N-dimethyl-, perchlorate (1:1) (CA INDEX NAME)

CM 1

CRN 101853-27-4

CMF C7 H18 N O



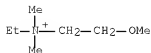
CM 2

CRN 14797-73-0

CMF C1 O4



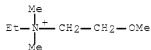
RN 101855-48-5 CAPLUS  
 CN Ethanaminium, N-ethyl-2-methoxy-N,N-dimethyl-, iodide, lithium salt  
 (1:2:1) (CA INDEX NAME)



RN 101855-49-6 CAPLUS  
 CN Ethanaminium, N-ethyl-2-methoxy-N,N-dimethyl-, lithium salt perchlorate  
 (1:1:2) (CA INDEX NAME)

CM 1

CRN 101853-27-4  
 CMF C7 H18 N O



CM 2

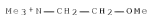
CRN 14797-73-0  
 CMF Cl O4



RN 101897-63-6 CAPLUS  
 CN Ethanaminium, 2-methoxy-N,N,N-trimethyl-, tetrafluoroborate(1-) (1:1) (CA INDEX NAME)

CM 1

CRN 25728-47-6  
 CMF C6 H16 N O

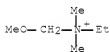


CM 2  
 CRN 14874-70-5  
 CMF B F4  
 CCI CCS



RN 101897-65-8 CAPLUS  
 CN Ethanaminium, N-(methoxymethyl)-N,N-dimethyl-, tetrafluoroborate(1-) (1:1)  
 (CA INDEX NAME)

CM 1  
 CRN 97291-97-9  
 CMF C6 H16 N O



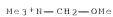
CM 2  
 CRN 14874-70-5  
 CMF B F4  
 CCI CCS



RN 101897-67-0 CAPLUS  
 CN Methanaminium, 1-methoxy-N,N,N-trimethyl-, tetrafluoroborate(1-) (1:2)  
 (CA INDEX NAME)

CM 1

CRN 39895-67-5  
CMF C5 H14 N O



CM 2  
CRN 14874-70-5  
CMF B F4  
CCI CCS



RN 101897-70-5 CAPLUS  
CN 1-Butanaminium, N-ethyl-N,N-dimethyl-, tetrafluoroborate(1-) (1:2) (CA INDEX NAME)

CM 1  
CRN 101897-68-1  
CMF C8 H20 N



CM 2  
CRN 14874-70-5  
CMF B F4  
CCI CCS

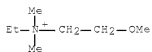


RN 101897-75-0 CAPLUS  
CN Ethanaminium, N-ethyl-2-methoxy-N,N-dimethyl-, tetrafluoroborate(1-) (1:1) (CA INDEX NAME)

CM 1

CRN 101853-27-4

CMF C7 H18 N O



CM 2

CRN 14874-70-5

CMF B F4

CCI CCS



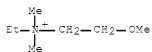
RN 101897-76-1 CAPLUS

CN Ethanaminium, N-ethyl-2-methoxy-N,N-dimethyl-, tetrafluoroborate(1-) (1:2)  
(CA INDEX NAME)

CM 1

CRN 101853-27-4

CMF C7 H18 N O



CM 2

CRN 14874-70-5

CMF B F4

CCI CCS



L38 ANSWER 5 OF 14 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 1984:95009 CAPLUS Full-text

DOCUMENT NUMBER: 100:95009

ORIGINAL REFERENCE NO.: 100:14280h,14281a

TITLE: Versatile organic iodide melts and glasses with high mole fractions of lithium iodide: glass transition temperatures and electrical conductivities

AUTHOR(S): Cooper, E. I.; Angell, C. A.

CORPORATE SOURCE: Dep. Chem., Purdue Univ., West Lafayette, IN, 47907, USA

SOURCE: Solid State Ionics (1983), 9-10(Pt. 1), 617-22

CODEN: SSIOD3; ISSN: 0167-2738

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Noting the high  $\sigma_0$  of LiI + LiPS3 glasses, the properties of salt melts in which all anions are iodide were explored. To obtain these, various low-melting tetraalkylammonium iodides, which may vitrify with up to 70 mol% LiI, were synthesized. Some mixts. may remain liquid at room temperature indefinitely. Elec. conductances do not attain the room temperature values of the inorg. LiI glasses. The organic cations introduce many possibilities for structural manipulation, and may also be polymerized Preliminary polymerization and conductivity results are reported. The investigation has suggested an important principle (the counterpolarization principle) distinguishing high alkali conductivity in salt or polymer solns. on the one hand and glassy solid electrolytes on the other.

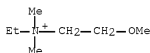
IT 88934-31-0

RL: USES (Uses)

(elec. conductance in melts and glasses of, with lithium iodide)

RN 88934-31-0 CAPLUS

CN Ethanaminium, N-ethyl-2-methoxy-N,N-dimethyl-, iodide (1:1) (CA INDEX NAME)



● I-

IT 10377-51-2

RL: USES (Uses)

(elec. conductance in melts and glasses of, with tetraalkylammonium iodides)

RN 10377-51-2 CAPLUS

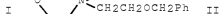
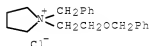
CN Lithium iodide (LiI) (CA INDEX NAME)

I-Li

L38 ANSWER 6 OF 14 CAPLUS COPYRIGHT 2009 ACS on STN  
 ACCESSION NUMBER: 1983:178729 CAPLUS [Full-text](#)  
 DOCUMENT NUMBER: 98:178729  
 ORIGINAL REFERENCE NO.: 98:27147a,27150a  
 TITLE: Quaternary ammonium salts  
 INVENTOR(S): Strickler, Rainer  
 PATENT ASSIGNEE(S): BASF A.-G., Fed. Rep. Ger.  
 SOURCE: Ger. Offen., 19 pp.  
 CODEN: GWXXBX  
 DOCUMENT TYPE: Patent  
 LANGUAGE: German  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 3126522	A1	19830120	DE 1981-3126522	19810704 <--
EP 69343	A1	19830112	EP 1982-105857	19820701 <--
EP 69343	B1	19841114		
R: BE, CH, DE, FR, GB, IT, LI, NL				
US 4482713	A	19841113	US 1982-394183	19820701 <--
JP 58010542	A	19830121	JP 1982-115627	19820705 <--
PRIORITY APPLN. INFO.:			DE 1981-3126522	A 19810704 <--

GI

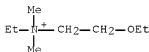


AB [RR1R2N(AO)nR3]+Z- [R, R1 = alkyl, aryl, aralkyl, alkoxyalkyl, (poly) alkyleneglycol, or formed a heterocycle with the N; R2, R3 = alkyl, alkenyl, aralk(en)yl; A = C2-10 alkylene; n ≥ 1 Z = salt anion or OH] were prepared by quaternization of tertiary compds. Among 29 such compds. prepared were [Me2N(CH2Ph)CH2CH2OCH2Ph]Cl, [CH2:CHCH2N(CH2CH2OCH2CH:CH2)3]Cl, I, and II.

IT 23671-52-5F  
 RL: SPN (Synthetic preparation); PREP (Preparation) (preparation of)

RN 23671-52-5 CAPLUS

CN Ethanaminium, 2-ethoxy-N-ethyl-N,N-dimethyl-, bromide (1:1) (CA INDEX NAME)



L38 ANSWER 7 OF 14 CAPLUS COPYRIGHT 2009 ACS on STN  
 ACCESSION NUMBER: 1980:200937 CAPLUS [Full-text](#)

DOCUMENT NUMBER: 92:200937  
 ORIGINAL REFERENCE NO.: 92:32538h,32539a  
 TITLE: Halogen complexing ethers  
 INVENTOR(S): Walsh, Fraser M.; Crouse, Dennis N.; Ajami, Alfred M.  
 PATENT ASSIGNEE(S): Eco-Control, Inc., USA  
 SOURCE: Can., 27 pp.  
 CODEN: CAXXA4  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 2  
 PATENT INFORMATION:

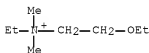
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
CA 1066762	A1	19791120	CA 1977-273604	19770309 <--
US 4038460	A	19770726	US 1976-667685	19760317 <--
PRIORITY APPLN. INFO.:			US 1976-667685	A 19760317 <--

AB Useful additive for Zn or Cd battery electrolyte for complexing halogens, e.g., Br, include: (ethoxyethyl)triethylammonium bromide [25385-91-5], (ethoxyethyl)dimethylethylammonium bromide [23671-52-5], (ethoxyethyl)trimethylammonium bromide [64894-59-3], and oxydiethylenebis[(ethoxyethyl)dimethylammonium bromide] [64855-88-5]. Thus, the ability of these compds. to complex a great amount of available Br as liqs. was demonstrated.

IT 23671-52-5  
 RL: USES (Uses)  
 (battery electrolyte containing, bromine-zinc)

RN 23671-52-5 CAPLUS

CN Ethanaminium, 2-ethoxy-N-ethyl-N,N-dimethyl-, bromide (1:1) (CA INDEX NAME)



L38 ANSWER 8 OF 14 CAPLUS COPYRIGHT 2009 ACS on STN  
 ACCESSION NUMBER: 1978:25578 CAPLUS Full-text  
 DOCUMENT NUMBER: 88:25578  
 ORIGINAL REFERENCE NO.: 88:4075a,4078a  
 TITLE: Halogen-complexing ethers  
 INVENTOR(S): Walsh, Fraser M.; Crouse, Dennis N.; Ajami, Alfred M.  
 PATENT ASSIGNEE(S): Eco-Control, Inc., USA  
 SOURCE: U.S., 10 pp.  
 CODEN: USXXAM  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 2  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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US 4038460	A	19770726	US 1976-667685	19760317 <--
CA 1066762	A1	19791120	CA 1977-273604	19770309 <--
GB 1551873	A	19790905	GB 1977-10785	19770315 <--
DE 2711694	A1	19770922	DE 1977-2711694	19770317 <--
JP 52114927	A	19770927	JP 1977-28765	19770317 <--

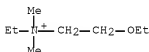
PRIORITY APPLN. INFO.: US 1976-667685 A 19760317 <--

AB Halogen-complexing ethers are disclosed as additives in cells and batteries which use the electrochem. reaction  $X_2 \cdot \text{dbrlw} \cdot 2X^-$ , where X is Br, Cl, and/or I. The ethers form insol. oil-like complexes with halogens which prevent the halogens from being dissolved in the cell or battery electrolyte. Thus, batteries containing an aqueous electrolyte of 0.4M ZnBr<sub>2</sub> and 0.2M ZnSO<sub>4</sub> with or without an additive, e.g., oxydiethylenebis[(2-ethoxyethyl)dimethylammonium] dibromide [64855-88-5], were charged at 5-25 A/ft<sup>2</sup> until >80% of ZnBr<sub>2</sub> initially in solution was converted to Zn and Br. All batteries were tested at a constant current drain and various c.ds. A significantly greater number of A-h and increased battery capacity were obtained with batteries whose electrolyte contained an additive.

IT 23671-52-5  
RL: USES (Uses)  
(battery electrolyte containing, halogen-zinc, for halogen complexing)

RN 23671-52-5 CAPLUS

CN Ethanaminium, 2-ethoxy-N-ethyl-N,N-dimethyl-, bromide (1:1) (CA INDEX NAME)



L38 ANSWER 9 OF 14 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 1976:130148 CAPLUS Full-text

DOCUMENT NUMBER: 84:130148

ORIGINAL REFERENCE NO.: 84:21085a,21088a

TITLE: Quantitative correlations between chemical structure and affinity for acetylcholine receptors

AUTHOR(S): Lien, E. J.; Ariens, E. J.; Beld, A. J.

CORPORATE SOURCE: Med. Fac., Univ. Nijmegen, Nijmegen, Neth.

SOURCE: European Journal of Pharmacology (1976),

35(2), 245-52

CODEN: EJPHAZ; ISSN: 0014-2999

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The affinity consts. (log K, pA<sub>2</sub>) of 128 quaternary ammonium compds. belonging to several different series have been correlated linearly with the hydrophobicity (πR) constant, the dipole moment (μR) and the number of hydroxyl groups (nOH) of the side chain; the dependence on the hydrophobicity constant of the quaternary ammonium head (π-N.sym.=) is shown to be parabolic. A correlation coefficient of 0.96 is obtained for all the compds. using only 4 independent variables (6 terms). Based on the quant. correlation obtained, intermol. forces involved in the drug-receptor interaction are discussed. Further mol. modifications to enhance the affinity to cholinergic receptors are suggested.

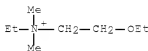
IT 13671-61-6 59875-36-8

RL: BIOL (Biological study)

(parasympatholytic activity of, dipole moment and hydrophobicity in relation to)

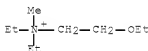
RN 23671-61-6 CAPLUS

CN Ethanaminium, 2-ethoxy-N-ethyl-N,N-dimethyl- (CA INDEX NAME)



RN 59875-36-8 CAPLUS

CN Ethanaminium, 2-ethoxy-N,N-diethyl-N-methyl- (CA INDEX NAME)



L38 ANSWER 10 OF 14 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 1969:521992 CAPLUS [Full-text](#)

DOCUMENT NUMBER: 71:121992

ORIGINAL REFERENCE NO.: 71:22661a,22664a

TITLE: Relations between chemical structure and affinity for acetylcholine receptors

AUTHOR(S): Abramson, Frank Barry; Barlow, R. B.; Mustafa, M. G.; Stephenson, R. P.

CORPORATE SOURCE: Dep. Pharmacol., Univ. Edinburgh, Edinburgh, UK

SOURCE: British Journal of Pharmacology (1969), 37(1), 207-33

CODEN: BJPCBM; ISSN: 0007-1188

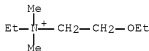
DOCUMENT TYPE: Journal

LANGUAGE: English

AB A series of analogs of acetylcholine was prepared in which the acetyl group was replaced by phenylacetyl, cyclohexylacetyl, diphenylacetyl, dicyclohexylacetyl, (±)-phenyl-cyclohexylacetyl, benziloyl and (±)-phenylcyclohexylhydroxy-acetyl groups and the trimethylammonium group was replaced by Me<sub>2</sub>EtN<sup>+</sup>, MeEt<sub>2</sub>N<sup>+</sup>, Et<sub>3</sub>N<sup>+</sup>, N-methyl (and ethyl)pyrrolidinium, N-methyl (and ethyl)piperidinium. Another series was prepared in which the acetoxyethyl group was replaced by ethoxyethyl, phenylethoxyethyl, cyclohexylethoxyethyl, diphenylethoxyethyl, and dicyclohexylethoxyethyl groups, and by n-pentyl, 5-phenylpentyl, 5-cyclohexylpentyl and 5,5-diphenylpentyl groups. The ethoxyethyl and n-pentyl series contain some compds. which are agonists or partial agonists when tested on the isolated guinea-pig ileum, but all the other compounds are antagonists. The affinity of the compds. for the postganglionic ("muscarine-sensitive") acetylcholine receptors was measured in conditions in which the antagonists have been shown to be acting competitively. There were considerable differences between their affinities, the most active having 10<sup>6</sup> times the affinity of the least active. The changes in affinity as the onium group was modified were not entirely independent of changes in the rest of the mol. Increasing the size of the

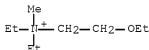
onium group, as judged from conductivity measurements on simpler onium salts, increased affinity in the series containing one large group (phenyl or cyclohexyl) but, in the series with 2 large groups, affinity declined when the size was increased beyond -N+MeEt2.

IT 23671-52-5 25385-90-4  
 RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
 (pharmacology of)  
 RN 23671-52-5 CAPLUS  
 CN Ethanaminium, 2-ethoxy-N-ethyl-N,N-dimethyl-, bromide (1:1) (CA INDEX NAME)



● Br<sup>-</sup>

RN 25385-90-4 CAPLUS  
 CN Ethanaminium, 2-ethoxy-N,N-diethyl-N-methyl-, iodide (1:1) (CA INDEX NAME)



● I<sup>-</sup>

L38 ANSWER 11 OF 14 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 1966:71056 CAPLUS [Full-text](#)  
 DOCUMENT NUMBER: 64:71056  
 ORIGINAL REFERENCE NO.: 64:13337e-g  
 TITLE: Absorption and localization of strontium and calcium in plants  
 AUTHOR(S): Myttenaere, C.; Kirchmann, R.; Dalschaert, X.; Debot, M.; Fagniard, E.  
 CORPORATE SOURCE: Centre Etude Energie Nucl., Mol, Belg.  
 SOURCE: (1965), AEC Accession No. 25836, Rept. No. EUR-487.f(Vol. I)., 20 pp. Avail.: AEC From: Nud. Sci. Abstr. 19(14), 3171(1965).  
 DOCUMENT TYPE: Report  
 LANGUAGE: French

AB The effect of the Sr/Ca ratio in the nutrient solution was studied with *Pisum sativum*. The ratio was varied while the sum of the two ions was maintained constant at 5 meq./l. The amount of stable Sr in the seed was determined by radioactivation (0.5 γ/seed). More than half of this amount was localized in the spermoderm. Similar results were found for Ca. The substitution of Ca by Sr reduced the growth of *Pisum*. However, a partial substitution (1/100 of the total Ca + Sr) was beneficial. The observed ratio varied with the organ and

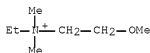
the Sr/Ca ratio of the nutrient. At very low Sr/Ca ratios, as in soil, taking into account the low Sr concentration and its high retention, the amount of Sr in the shoot was lower than in the roots. Higher Sr/Ca ratios give opposite results. A low Sr/Ca ratio resulted also in a different chemical distribution (%) of the absorbed Sr and Ca. The discrimination made by animals between Sr and Ca could be partly attributed to the quality of the ingested plant material.

IT 5187-15-5

(Derived from data in the 7th Collective Formula Index (1962-1966))

RN 5187-15-5 CAPLUS

CN Ethanaminium, N-ethyl-2-methoxy-N,N-dimethyl-, bromide (1:1) (CA INDEX NAME)



● Br<sup>-</sup>

L38 ANSWER 12 OF 14 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 1966:71055 CAPLUS Full-text

DOCUMENT NUMBER: 64:71055

ORIGINAL REFERENCE NO.: 64:13337c-e

TITLE: Cultivation of Vinca minor in nutrient solutions and investigation of its respiration

AUTHOR(S): Varadi, Jozsef; Petri, Gizella Verzar

SOURCE: Acta Pharmaceutica Hungarica (1966), 36(1), 27-31

CODEN: APHGAO; ISSN: 0001-6659

DOCUMENT TYPE: Journal

LANGUAGE: Hungarian

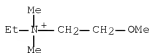
AB The optimal conditions under which V. minor produced vincamin (I) and isovincamin were determined. Several nutrient solns. were tested. Modified Hoagland medium substituting basic ferric tartrate for basic ferric citrate and a 3-fold dilution of this medium produced the highest amount of healthy plants with the greatest absolute amount of alkaloids expressed as I. CO<sub>2</sub> production was determined at the start and at weekly intervals. Production of CO<sub>2</sub> indicated that the plant metabolism, and presumably its alkaloid synthesis, was most active during the 2nd week of growth. Increase in the test plants absolute alkaloid content, compared with the controls, proved that the plants were able to synthesize alkaloids in nutrient solns.

IT 5187-15-5

(Derived from data in the 7th Collective Formula Index (1962-1966))

RN 5187-15-5 CAPLUS

CN Ethanaminium, N-ethyl-2-methoxy-N,N-dimethyl-, bromide (1:1) (CA INDEX NAME)



L38 ANSWER 13 OF 14 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 1966:18629 CAPLUS Full-text

DOCUMENT NUMBER: 64:18629

ORIGINAL REFERENCE NO.: 64:3337d-e

TITLE: Amines and quaternary ammonium compounds. XXX. Basic cleavage of tertiary NH<sub>4</sub> salts containing a methoxy substituent

AUTHOR(S): Babayan, A. T.; Indzhikyan, M. G.; Gegelyan, Zh. G.

SOURCE: Izvestiya Akademii Nauk Armyanskoi SSR, Khimicheskii Nauki (1965), 18(4), 351-9

CODEN: IARKAZ; ISSN: 0367-6846

DOCUMENT TYPE: Journal

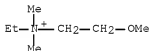
LANGUAGE: Russian

AB cf. preceding abstract Basic cleavage of tertiary NH<sub>4</sub> salts containing a methoxy substituent Me<sub>2</sub>N+(CH<sub>2</sub>C.tplbond.CR)CH<sub>2</sub>CH:CHMeCl-, Me<sub>2</sub>N+(CH<sub>2</sub>C.tplbond.CR) (CH<sub>2</sub>CH:CHMe)Cl-, Me<sub>3</sub>N+CH<sub>2</sub>RBr-, Me<sub>2</sub>N+(Et) (CH<sub>2</sub>R)Br-, Me<sub>3</sub>N+CH<sub>2</sub>CH:CHRBr-, Me<sub>2</sub>N+(CH<sub>2</sub>R) (CH<sub>2</sub>CH:CHR)Cl-, Me<sub>2</sub>N+(CH<sub>2</sub>CH:CHMe) (CH<sub>2</sub>CH:CHR)Cl-, and Me<sub>2</sub>N+(CH<sub>2</sub>CH:CHCH<sub>2</sub>R) (CH<sub>2</sub>CH:CHR), where R = CH<sub>2</sub>OMe) was performed analogously. No marked difference was observed between the ease of cleavage of 2-butenyl and 4-methoxy-2-butenyl groups. In a δ-position of a β,γ unsatd. group, MeO group promotes the isomerization of the unsatd. bond to the α,β position.

IT 5187-15-5, Ammonium, ethyl(2-methoxyethyl)dimethyl, bromide  
(cleavage of)

RN 5187-15-5 CAPLUS

CN Ethanaminium, N-ethyl-2-methoxy-N,N-dimethyl-, bromide (1:1) (CA INDEX NAME)



L38 ANSWER 14 OF 14 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 1964:26005 CAPLUS Full-text

DOCUMENT NUMBER: 60:26005

ORIGINAL REFERENCE NO.: 60:4633h, 4634a-c

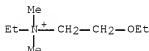
TITLE: An attempt to study the effects of chemical structure on the affinity and efficacy of compounds related to acetylcholine

AUTHOR(S): Barlow, R. B.; Scott, K. A.; Stephenson, R. P.

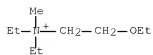
CORPORATE SOURCE: Univ. Edinburgh Med. School, UK  
 SOURCE: British Journal of Pharmacology and Chemotherapy (1963), 21(3), 509-22  
 CODEN: BJPCAL; ISSN: 0366-0826  
 DOCUMENT TYPE: Journal  
 LANGUAGE: Unavailable

AB Two sets of series of compds., RN+Me3, RN+Me2Et, RN+MeEt2, RN+Et3, and R'N+Me3, R'N+Me2Et, R'N+MeEt2, R'N+Et3, were prepared, in which R is a 2-(diphenylacetoxy)ethyl, 2-(benziloxyloxy)ethyl, 2-(2,2-diphenylethoxy)-ethyl, 3-(diphenylmethoxy)propyl, or 3,3-diphenylbutyrylmethyl group, and R' is a 2-acetoxyethyl, 2-ethoxyethyl, 3-methoxypropyl, or butyrylmethyl group: compds. of the 1st set therefore differ from those of the grid set in that they contain a diphenylmethyl group (or a benziloyl group) in place of a Me group. The former compds. are antagonists of acetylcholine whereas most of the latter act like acetylcholine. The affinity constns. of the former compds. for the acetylcholine receptors of the guinea pig ileum were determined and the equipotent molar ratios relative to acetylcholine were measured for the latter compds. The variation of the affinity constant with the constitution of the onium group in the antagonists (the diphenylmethyl compds.) was sufficiently consistent from one series to another for it to seem likely that corresponding changes in affinity with the constitution of the onium group would occur in the agonists. From the relative activity of the agonists and with this knowledge of relative affinity it was possible to assess the effects of their structure on efficacy. Substitution of 1 Me in the onium group by an Et group in these compds. increased affinity but decreased efficacy. The replacement of a 2nd Me by a 2nd Et group had little effect on affinity but decreased efficacy still further. The replacement of the ester link in acetylcholine by a 4-ether O atom (as in the diphenylmethoxypropyl and methoxypropyl compds.) did not appreciably reduce affinity but markedly reduced efficacy, whereas the replacement of the ester link by a 3-ether O atom (as in the diphenylethoxyethyl and ethoxyethyl compds.) markedly reduced affinity but did not reduce efficacy. The diphenylbutyrylmethyl compds. had low affinity and the butyrylmethyl compds. had low efficacy. The action of acetylcholine at the postganglionic parasympathetic receptors in the guinea pig ileum depends upon the presence of the 4-carbonyl group (and presumably the onium group) for affinity and on the 3-ether O atom and the trimethyl-ammonium group for efficacy.

IT 23671-52-5, Ammonium, (2-ethoxyethyl)ethyldimethyl, bromide  
 93282-76-9, Ammonium, (2-ethoxyethyl)diethylmethyl, bromide  
 (pharmacology of)  
 RN 23671-52-5 CAPLUS  
 CN Ethanaminium, 2-ethoxy-N-ethyl-N,N-dimethyl-, bromide (1:1) (CA INDEX NAME)



RN 93282-76-9 CAPLUS  
 CN Ethanaminium, 2-ethoxy-N,N-diethyl-N-methyl-, bromide (1:1) (CA INDEX NAME)



## STRUCTURE SEARCH PART 2

=&gt; d que nos 137

L3 STR  
 L6 54 SEA FILE=REGISTRY SSS FUL L3  
 L15 149 SEA FILE=CAPLUS SPE=ON ABB=ON L6  
 L23 123813 SEA FILE=REGISTRY SPE=ON ABB=ON LI/ELS  
 L24 382535 SEA FILE=CAPLUS SPE=ON ABB=ON L23  
 L25 50 SEA FILE=CAPLUS SPE=ON ABB=ON L15 AND L24  
 L36 294335 SEA FILE=CAPLUS SPE=ON ABB=ON ELECTROLYT?/OBI  
 L37 26 SEA FILE=CAPLUS SPE=ON ABB=ON L25 AND L36

=&gt; s 137 not 138

L39 25 L37 NOT L38 L38 WAS PRINTED IN PART 1

=&gt; d ibib abs hitind hitstr 139 1-25; fil hom

L39 ANSWER 1 OF 25 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2008:862272 CAPLUS Full-text

DOCUMENT NUMBER: 149:184566

TITLE: Quaternary ammonium room-temperature ionic liquid including an oxygen atom in side chain/lithium salt binary electrolytes: ab initio molecular orbital calculations of interactions between ions

AUTHOR(S): Tsuzuki, Seiji; Hayamizu, Kikuko; Seki, Shiro; Ohno, Yasutaka; Kobayashi, Yo; Miyashiro, Hajime

CORPORATE SOURCE: National Institute of Advanced Industrial Science and Technology (AIST), Tsukuba, Ibaraki, 305-8568, Japan

SOURCE: Journal of Physical Chemistry B (2008), 112(32), 9914-9920

CODEN: JPCBFF; ISSN: 1520-6106

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Interactions of the lithium bis(trifluoromethylsulfonyl)amide (LiTfSA) complex with N,N-diethyl-N-methyl-N-(2-methoxyethyl) ammonium (DEME), 1-ethyl-3-methylimidazolium (EMIM) cations, neutral diethylether (DEE), and the DEMETfSA complex were studied by ab initio MO calcns. An interaction energy potential calculated for the DEME cation with the LiTfSA complex has a min. when the Li atom has contact with the oxygen atom of DEME cation, while potentials for the EMIM cation with the LiTfSA complex are always repulsive. The MP2/6-311G\*\*//HF/6-311G\*\* level interaction energy calculated for the DEME cation with the LiTfSA complex was -18.4 kcal/mol. The interaction energy for the neutral DEE with the LiTfSA complex was larger (-21.1 kcal/mol). The interaction energy for the DEMETfSA complex with LiTfSA complex is greater (-23.2 kcal/mol). The electrostatic and induction interactions are the major source of the attraction in the two systems. The substantial attraction between the DEME cation and the LiTfSA complex suggests that the interaction between the Li cation and the oxygen atom of DEME cation plays important roles in determining the mobility of the Li cation in DEME-based room temperature ionic liqs.

CC 68-6 (Phase Equilibria, Chemical Equilibria, and Solutions)

Section cross-reference(s): 69

ST ammonium compd ethylether lithium fluoromethylsulfonylamide electrolyte system ion pairing

IT Complexation

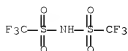
Coordination sphere

Electrolytes

Electrostatic force

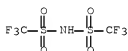
- Formation enthalpy  
 Ion pairs  
 Ionic liquids  
 Potential energy  
 (MP2 HF calcs. of ion pairing in Et ether/lithium(1+)/quarternary ammonium/bis(trifluoromethylsulfonyl)amide(1-) electrolyte systems)
- IT Quaternary ammonium compounds, properties  
 RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)  
 (alkyl; MP2 HF calcs. of ion pairing in Et ether/lithium(1+)/quarternary ammonium/bis(trifluoromethylsulfonyl)amide(1-) electrolyte systems)
- IT Molecular structure  
 (optimized; MP2 HF calcs. of ion pairing in Et ether/lithium(1+)/quarternary ammonium/bis(trifluoromethylsulfonyl)amide(1-) electrolyte systems)
- IT Force  
 (repulsive; MP2 HF calcs. of ion pairing in Et ether/lithium(1+)/quarternary ammonium/bis(trifluoromethylsulfonyl)amide(1-) electrolyte systems)
- IT 60-29-7D, Diethyl ether, lithium bis(trifluoromethylsulfonyl)amide complex with di-Et ether 7439-93-2D, Lithium, Lithium complex with N,N-diethyl-N-methyl-N-(2-methoxyethyl) ammonium 51002-64-3 65039-03-4D, 1-Ethyl-3-methylimidazolium, 1-ethyl-3-methylimidazolium complex with lithium bis(trifluoromethylsulfonyl)amide 90076-65-6, Lithium bis(trifluoromethylsulfonyl)amide 90076-65-6D, Lithium bis(trifluoromethylsulfonyl)amide, 1-ethyl-3-methylimidazolium complex with lithium bis(trifluoromethylsulfonyl)amide 90076-65-6D, Lithium bis(trifluoromethylsulfonyl)amide, lithium bis(trifluoromethylsulfonyl)amide complex with N,N-diethyl-N-methyl-N-(2-methoxyethyl) ammonium 90076-65-6D, Lithium bis(trifluoromethylsulfonyl)amide, lithium bis(trifluoromethylsulfonyl)amide complex with di-Et ether 464927-71-7D, complex with lithium 464927-71-7D, lithium bis(trifluoromethylsulfonyl)amide complex with N,N-diethyl-N-methyl-N-(2-methoxyethyl) ammonium  
 RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)  
 (MP2 HF calcs. of ion pairing in Et ether/lithium(1+)/quarternary ammonium/bis(trifluoromethylsulfonyl)amide(1-) electrolyte systems)
- IT 7439-93-2D, Lithium, Lithium complex with N,N-diethyl-N-methyl-N-(2-methoxyethyl) ammonium 90076-65-6, Lithium bis(trifluoromethylsulfonyl)amide 90076-65-6D, Lithium bis(trifluoromethylsulfonyl)amide, 1-ethyl-3-methylimidazolium complex with lithium bis(trifluoromethylsulfonyl)amide 464927-71-7D, complex with lithium  
 RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)  
 (MP2 HF calcs. of ion pairing in Et ether/lithium(1+)/quarternary ammonium/bis(trifluoromethylsulfonyl)amide(1-) electrolyte systems)
- RN 7439-93-2 CAPLUS
- CN Lithium (CA INDEX NAME)

RN 90076-65-6 CAPLUS  
 CN Methanesulfonamide, 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]-,  
 lithium salt (1:1) (CA INDEX NAME)



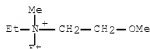
● Li

RN 90076-65-6 CAPLUS  
 CN Methanesulfonamide, 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]-,  
 lithium salt (1:1) (CA INDEX NAME)



● Li

RN 464927-71-7 CAPLUS  
 CN Ethanaminium, N,N-diethyl-2-methoxy-N-methyl- (CA INDEX NAME)



REFERENCE COUNT: 38 THERE ARE 38 CITED REFERENCES AVAILABLE FOR THIS  
 RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L39 ANSWER 2 OF 25 CAPLUS COPYRIGHT 2009 ACS on STN  
 ACCESSION NUMBER: 2008:858932 CAPLUS Full-text  
 DOCUMENT NUMBER: 149:165953  
 TITLE: Electric double layer capacitor  
 INVENTOR(S): Koh, Meiten; Yamauchi, Akiyoshi; Takeuchi, Rumi;  
 Tanaka, Michiru  
 PATENT ASSIGNEE(S): Daikin Industries, Ltd., Japan  
 SOURCE: PCT Int. Appl., 58pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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WO 2008084846 A1 20080717 WO 2008-JP50252 20080111

W: AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW

RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL, NO, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GD, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM

PRIORITY APPLN. INFO.: JP 2007-4542 A 20070112

OTHER SOURCE(S): MARPAT 149:165953

AB Disclosed is an elec. double layer capacitor comprising (A) a solvent containing a specific F-containing cyclic carbonate, (B) a nonaq. electrolyte solution containing an electrolyte salt containing a cyclic quaternary onium salt composed of a cyclic quaternary onium cation and PF<sub>6</sub><sup>-</sup>, (CF<sub>3</sub>SO<sub>2</sub>)<sub>2</sub>N<sup>-</sup> or (C<sub>2</sub>F<sub>5</sub>SO<sub>2</sub>)<sub>2</sub>N<sup>-</sup>, and (C) a polarizable electrode. This elec. double layer capacitor has high withstand voltage and excellent solubility in a wide range of solvents for electrolyte salt dissoln.

CC 76-10 (Electric Phenomena)

ST elec double layer capacitor electrolyte onium salt; polarizable electrode

IT Capacitors  
(double layer; elec. double-layer capacitors containing nonaq. electrolyte solns. containing cyclic quaternary onium salts)

IT Electrolytic solutions  
(elec. double-layer capacitors containing nonaq. electrolyte solns. containing cyclic quaternary onium salts)

IT 7440-44-0, Carbon, uses  
RL: TEM (Technical or engineered material use); USES (Uses)  
(active; elec. double-layer capacitors containing nonaq. electrolyte solns. containing cyclic quaternary onium salts)

IT 90430-61-8 131651-65-5  
RL: MOA (Modifier or additive use); USES (Uses)  
(additive; elec. double-layer capacitors containing nonaq. electrolyte solns. containing cyclic quaternary onium salts)

IT 16941-15-4 129238-57-9 155371-19-0 159599-73-2 174899-82-2 464927-81-9  
RL: TEM (Technical or engineered material use); USES (Uses)  
(elec. double-layer capacitors containing nonaq. electrolyte solns. containing cyclic quaternary onium salts)

IT 79-20-9, Methyl acetate 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 108-32-7, Propylene carbonate 126-33-0, Sulfolane 872-36-6, Vinylene carbonate 1513-87-7 16627-68-2 30952-31-9 114435-02-8 156783-95-8 167951-80-6 304881-43-4 866416-23-1 1038590-47-4  
RL: TEM (Technical or engineered material use); USES (Uses)  
(solvent; elec. double-layer capacitors containing nonaq. electrolyte solns. containing cyclic quaternary onium salts)

IT 90430-61-8 131651-65-5  
RL: MOA (Modifier or additive use); USES (Uses)  
(additive; elec. double-layer capacitors containing nonaq. electrolyte solns. containing cyclic quaternary onium salts)

RN 90430-61-8 CAPLUS

CN Hexanoic acid, 2,2,3,3,4,4,5,5,6,6-undecafluoro-, lithium salt (1:1) (CA INDEX NAME)



RN 131651-65-5 CAPLUS

CN 1-Butanesulfonic acid, 1,1,2,2,3,3,4,4,4-nonafluoro-, lithium salt (1:1)  
(CA INDEX NAME)



IT 464927-81-9

RL: TEM (Technical or engineered material use); USES (Uses)  
(elec. double-layer capacitors containing nonaq. electrolyte  
solns. containing cyclic quaternary onium salts)

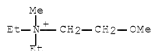
RN 464927-81-9 CAPLUS

CN Ethanaminium, N,N-diethyl-2-methoxy-N-methyl-, hexafluorophosphate(1-)  
(1:1) (CA INDEX NAME)

CM 1

CRN 464927-71-7

CMF C8 H20 N O



CM 2

CRN 16919-18-9

CMF F6 P

CCI CCS



REFERENCE COUNT:

12

THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS

RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L39 ANSWER 3 OF 25 CAPLUS COPYRIGHT 2009 ACS ON STN

ACCESSION NUMBER: 2008:546148 CAPLUS [Full-text](#)

DOCUMENT NUMBER: 149:83551

TITLE: Quaternary Ammonium Room-Temperature Ionic

Liquid/Lithium Salt Binary Electrolytes:

Electrochemical Study

AUTHOR(S): Seki, Shiro; Ohno, Yasutaka; Miyashiro, Hajime;  
Kobayashi, Yo; Usami, Akira; Mita, Yuichi; Terada,  
Nobuyuki; Hayamizu, Kikuko; Tsuzuki, Seiji; Watanabe,  
MasayoshiCORPORATE SOURCE: Materials Science Research Laboratory, Central  
Research Institute of Electric Power Industry  
(CRIEPI), Komae, Tokyo, 201-8511, JapanSOURCE: Journal of the Electrochemical Society (2008), 155(6),  
A421-A427

CODEN: JESQAN; ISSN: 0013-4651

PUBLISHER: Electrochemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB To determine the properties of the quaternary ammonium cation room-temperature ionic liquid [N,N-diethyl-N-methyl-N-(2-methoxy-ethyl) NH4<sup>+</sup> bis (trifluoromethylsulfonyl) amide (DEMETFSA)] used in Li secondary battery electrolytes, the Li ionic transport properties of electrolytes, the characteristics of the interface of a LiCoO<sub>2</sub> cathode and a Li anode, and battery performance were studied. A DEMETFSA-LiTFSa binary electrolyte showed high chemical stability with Li electrode and a relatively high Li cationic transport number, 0.13, as determined by electrochem. measurements. The prepared [LiCoO<sub>2</sub> cathode|DEMETFSA-LiTFSa binary electrolyte|lithium metal anode] cell showed sufficient charge/discharge reversibility over 100 cycles (voltage range, 4.2-3.0 V). The reversibility of capacities and coulombic efficiencies degraded with increasing upper cutoff voltage owing to cathode/electrolyte interfacial degradation, which were analyzed in detail by impedance measurements.

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)  
Section cross-reference(s): 72

ST quaternary ammonium ionic liq binary electrolyte lithium battery

IT Secondary batteries

(lithium; quaternary ammonium room-temperature ionic liquid/lithium salt  
binary electrolyte for lithium batteries)

IT Battery electrolytes

Ionic liquids

(quaternary ammonium room-temperature ionic liquid/lithium salt binary  
electrolyte for lithium batteries)

IT 7439-93-2, Lithium, uses

RL: TEM (Technical or engineered material use); USES (Uses)

(anode; quaternary ammonium room-temperature ionic liquid/lithium salt

binary electrolyte for lithium batteries with)

IT 12190-79-3, Cobalt lithium oxide (CoLiO<sub>2</sub>)

RL: TEM (Technical or engineered material use); USES (Uses)

(cathode; quaternary ammonium room-temperature ionic liquid/lithium salt

binary electrolyte for lithium batteries with)

IT 90076-65-6, Lithium bis(trifluoromethylsulfonyl)amide  
464927-84-2

RL: TEM (Technical or engineered material use); USES (Uses)

(quaternary ammonium room-temperature ionic liquid/lithium salt binary

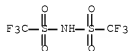
electrolyte for lithium batteries)  
 IT 7439-93-2, Lithium, uses  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (anode; quaternary ammonium room-temperature ionic liquid/lithium salt  
 binary electrolyte for lithium batteries with)  
 RN 7439-93-2 CAPLUS  
 CN Lithium (CA INDEX NAME)

Li

IT 12190-79-3, Cobalt lithium oxide (CoLiO2)  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (cathode; quaternary ammonium room-temperature ionic liquid/lithium salt  
 binary electrolyte for lithium batteries with)  
 RN 12190-79-3 CAPLUS  
 CN Cobalt lithium oxide (CoLiO2) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
O	2	17778-80-2
Co	1	7440-48-4
Li	1	7439-93-2

IT 90076-65-6, Lithium bis(trifluoromethylsulfonyl)amide  
 464927-84-2  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (quaternary ammonium room-temperature ionic liquid/lithium salt binary  
 electrolyte for lithium batteries)  
 RN 90076-65-6 CAPLUS  
 CN Methanesulfonamide, 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]-,  
 lithium salt (1:1) (CA INDEX NAME)

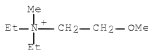


● Li

RN 464927-84-2 CAPLUS  
 CN Ethanaminium, N,N-diethyl-2-methoxy-N-methyl-, salt with  
 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]methanesulfonamide (1:1) (CA  
 INDEX NAME)

CM 1

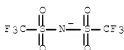
CRN 464927-71-7  
 CME C8 H20 N O



CM 2

CRN 98837-98-0

CMF C2 F6 N 04 S2

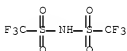


REFERENCE COUNT: 83 THERE ARE 83 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L39 ANSWER 4 OF 25 CAPLUS COPYRIGHT 2009 ACS ON STN  
 ACCESSION NUMBER: 2008:375884 CAPLUS [Full-text](#)  
 DOCUMENT NUMBER: 148:383023  
 TITLE: Ion conducting electrolytes and secondary batteries comprising the electrolytes  
 INVENTOR(S): Sawai, Hiroshi  
 PATENT ASSIGNEE(S): Sumitomo Bakelite Co., Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 14pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	---	-----	-----	-----
JP 2008071725	A	20080327	JP 2006-251815	20060915
PRIORITY APPLN. INFO.:			JP 2006-251815	20060915
AB	The title electrolytes comprise (A) polymers prepared from salt monomers of onium cations having polymerizable groups and organic anions having polymerizable groups, (B) Li salts, and (C) standard temperature-fused salts and are treated by their dilution with a solvent, showing azeotropy under atmospheric pressure in ratios of <84 weight% the solvent and >16 weight% water, followed by removal of the solvent. Preferably, the solvents are free of C:C bond. Secondary batteries including the electrolytes are also claimed. The electrolytes have low interfacial resistance.			
CC	52-2 (Electrochemical, Radiational, and Thermal Energy Technology) Section cross-reference(s): 38			
ST	ion conducting electrolyte secondary battery; onium salt polymer electrolyte water azeotropic solvent treated			
IT	Battery electrolytes Secondary batteries (ion-conducting onium salt polymer electrolytes for lithium secondary batteries)			
IT	Ionomers			

- RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(ion-conducting onium salt polymer electrolytes for lithium secondary batteries)
- IT Quaternary ammonium compounds, uses  
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(polymers; ion-conducting onium salt polymer electrolytes for lithium secondary batteries)
- IT 15214-89-8P, 2-Acrylamido-2-methyl-1-propanesulfonic acid 1013425-64-3P  
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)  
(ion-conducting onium salt polymer electrolytes for lithium secondary batteries)
- IT 75403-74-6P 1013425-65-4P  
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(ion-conducting onium salt polymer electrolytes for lithium secondary batteries)
- IT 51410-72-1  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(ion-conducting onium salt polymer electrolytes for lithium secondary batteries)
- IT 90076-65-6, Lithium bis(trifluoromethanesulfonyl)imide  
RL: TEM (Technical or engineered material use); USES (Uses)  
(ion-conducting onium salt polymer electrolytes for lithium secondary batteries)
- IT 464927-84-2  
RL: TEM (Technical or engineered material use); USES (Uses)  
(room-temperature molten salt; ion-conducting onium salt polymer electrolytes for lithium secondary batteries)
- IT 90076-65-6, Lithium bis(trifluoromethanesulfonyl)imide  
RL: TEM (Technical or engineered material use); USES (Uses)  
(ion-conducting onium salt polymer electrolytes for lithium secondary batteries)
- RN 90076-65-6 CAPLUS
- CN Methanesulfonamide, 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]-, lithium salt (1:1) (CA INDEX NAME)

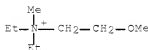


● Li

- IT 464927-84-2  
RL: TEM (Technical or engineered material use); USES (Uses)  
(room-temperature molten salt; ion-conducting onium salt polymer electrolytes for lithium secondary batteries)
- RN 464927-84-2 CAPLUS
- CN Ethanaminium, N,N-diethyl-2-methoxy-N-methyl-, salt with 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]methanesulfonamide (1:1) (CA INDEX NAME)

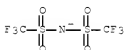
CM 1

CRN 464927-71-7  
CMF C8 H20 N O



CM 2

CRN 98837-98-0  
CMF C2 F6 N O4 S2



L39 ANSWER 5 OF 25 CAPLUS COPYRIGHT 2009 ACS on STN  
 ACCESSION NUMBER: 2008:375883 CAPLUS Full-text  
 DOCUMENT NUMBER: 148:383022  
 TITLE: Ion conducting electrolytes and secondary  
 batteries comprising the electrolytes  
 INVENTOR(S): Sawai, Hiroshi  
 PATENT ASSIGNEE(S): Sumitomo Bakelite Co., Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 14pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2008071724	A	20080327	JP 2006-251814	20060915
PRIORITY APPLN. INFO.:			JP 2006-251814	20060915
OTHER SOURCE(S):	MARPAT 148:383022			

AB The title electrolytes comprise (A) polymers prepared from salt monomers of onium cations having polymerizable groups and organic anions having polymerizable groups, under presence of initiators XOXY (X, Y = R, COR, COOR, ROOR, ROR; X has 5-10 atoms in its main chain; Y has 2-10 atoms in its main chain; R = C<sub>2</sub> alkyl, may contain ring, heteroatom but free of double and triple bonds), (B) Li salts, and (C) standard temperature-fused salts. Secondary batteries including the electrolytes are also claimed. The batteries show high threshold voltage.

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)  
 Section cross-reference(s): 38

ST ion conducting electrolyte secondary battery; peroxide initiator  
 salt polymer electrolyte prepn; onium salt polymer  
 electrolyte secondary battery

IT Peroxides, uses  
 RL: CAT (Catalyst use); USES (Uses)  
 (initiator; ion-conducting oniom salt polymer electrolytes  
 for lithium secondary batteries)

IT Battery electrolytes  
 Secondary batteries  
 (ion-conducting oniom salt polymer electrolytes for lithium  
 secondary batteries)

IT Ionomers  
 RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT  
 (Reactant or reagent)  
 (ion-conducting oniom salt polymer electrolytes for lithium  
 secondary batteries)

IT Quaternary ammonium compounds, preparation  
 RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT  
 (Reactant or reagent)  
 (polymers; ion-conducting oniom salt polymer electrolytes for  
 lithium secondary batteries)

IT 15520-11-3 26748-41-4, tert-Butyl peroxyneodecanoate  
 RL: CAT (Catalyst use); USES (Uses)  
 (initiator; ion-conducting oniom salt polymer electrolytes  
 for lithium secondary batteries)

IT 75403-74-6P 1013425-64-3P  
 RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT  
 (Reactant or reagent)  
 (ion-conducting oniom salt polymer electrolytes for lithium  
 secondary batteries)

IT 1013425-65-4P  
 RL: IMF (Industrial manufacture); TEM (Technical or engineered material  
 use); PREP (Preparation); USES (Uses)  
 (ion-conducting oniom salt polymer electrolytes for lithium  
 secondary batteries)

IT 15214-89-8, 2-Acrylamido-2-methyl-1-propanesulfonic acid 51410-72-1  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (ion-conducting oniom salt polymer electrolytes for lithium  
 secondary batteries)

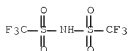
IT 90076-65-6, Lithium bis(trifluoromethanesulfonyl)imide  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (ion-conducting oniom salt polymer electrolytes for lithium  
 secondary batteries)

IT 464927-84-2  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (room-temperature molten salt; ion-conducting oniom salt polymer  
 electrolytes for lithium secondary batteries)

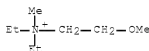
IT 90076-65-6, Lithium bis(trifluoromethanesulfonyl)imide  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (ion-conducting oniom salt polymer electrolytes for lithium  
 secondary batteries)

RN 90076-65-6 CAPLUS

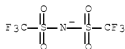
CN Methanesulfonamide, 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]-,  
 lithium salt (1:1) (CA INDEX NAME)



IT 464927-84-2  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (room-temperature molten salt; ion-conducting oniom salt polymer  
 electrolytes for lithium secondary batteries)  
 RN 464927-84-2 CAPLUS  
 CN Ethanaminium, N,N-diethyl-2-methoxy-N-methyl-, salt with  
 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]methanesulfonamide (1:1) (CA  
 INDEX NAME)  
 CM 1  
 CRN 464927-71-7  
 CMF C8 H20 N O



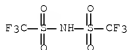
CM 2  
 CRN 98837-98-0  
 CMF C2 F6 N O4 S2



L39 ANSWER 6 OF 25 CAPLUS COPYRIGHT 2009 ACS on STN  
 ACCESSION NUMBER: 2008:25049 CAPLUS Full-text  
 DOCUMENT NUMBER: 148:296488  
 TITLE: Quaternary Ammonium Room-Temperature Ionic Liquid  
 Including an Oxygen Atom in Side Chain/Lithium Salt  
 Binary Electrolytes: Ionic Conductivity and  
<sup>1</sup>H, <sup>7</sup>Li, and <sup>19</sup>F NMR Studies on Diffusion Coefficients  
 and Local Motions  
 AUTHOR(S): Hayamizu, Kikuko; Tsuzuki, Seiji; Seki, Shiro; Ohno,  
 Yasutaka; Miyashiro, Hajime; Kobayashi, Yo  
 CORPORATE SOURCE: AIST Tsukuba Center 5, National Institute of Advanced  
 Industrial Science and Technology (AIST), Tsukuba,  
 Ibaraki, 305-8565, USA

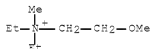
- SOURCE: Journal of Physical Chemistry B (2008), 112(4), 1189-1197  
CODEN: JPCBFK; ISSN: 1520-6106
- PUBLISHER: American Chemical Society
- DOCUMENT TYPE: Journal
- LANGUAGE: English
- AB A room-temperature ionic liquid (RTIL) of a quaternary ammonium cation having an ether chain, N,N-diethyl-N-methyl-N-(2-methoxyethyl)ammonium bis(trifluoromethylsulfonyl)amide (DEME-TFSA), is a candidate for use as an electrolyte of lithium secondary batteries. The electrochem. ionic conductivity,  $\sigma$ , of the neat DEME-TFSA and DEME-TFSA-Li doped with five different concns. of lithium salt (LiTFSA) was measured and correlated with NMR measurements of the diffusion coeffs. D and the spin-lattice relaxation times T1 of the individual components DEME (1H), TFSA (19F), and lithium ion (7Li). The ion conduction of charged ions can be activated with less thermal energy than ion diffusion which contains a contribution from paired ions in DEME-TFSA. In the doped DEME-TFSA-Li samples, the  $\sigma$  and D values decreased with increasing salt concentration, and within the same sample generally  $D_{Li} < D_{TFSA} < D_{DEME}$  except for the sample having the lowest salt concentration at low temps. Since plots of the temperature dependence of T1 of the 1H and 7Li resonances showed T1 min., the correlation times  $\tau_c(H)$  and  $\tau_c(Li)$  were calculated for reorientational motions of DEME and the lithium jump, resp. At the same temperature,  $\tau_c(Li)$  is longer than  $\tau_c(H)$ , suggesting that the mol. motion of DEME occurs more rapidly than the lithium jump. Combining the  $D_{Li}$  and  $\tau_c(Li)$ , averaged distances for the lithium jump were estimated
- CC 76-1 (Electric Phenomena)  
Section cross-reference(s): 72
- ST NMR cond ionic liq electrolyte binary lithium salt
- IT Diffusion  
Electrolytes  
Ionic conductivity  
Ionic liquids  
Knight shift  
Molecular dynamics  
Spin-lattice relaxation  
(NMR and mol. motion and diffusion and ionic conductivity of ionic liqs. binary electrolytes)
- IT NMR (nuclear magnetic resonance)  
(fluorine-19; NMR and mol. motion and diffusion and ionic conductivity of ionic liqs. binary electrolytes)
- IT NMR (nuclear magnetic resonance)  
(lithium-7; NMR and mol. motion and diffusion and ionic conductivity of ionic liqs. binary electrolytes)
- IT 110-71-4, Ethylene Glycol dimethyl ether 7664-38-2, Phosphoric acid, formation (nonpreparative) 17009-90-4, Imidazolium  
RL: FMU (Formation, unclassified); FORM (Formation, nonpreparative)  
(NMR and mol. motion and diffusion and ionic conductivity of ionic liqs. binary electrolytes)
- IT 143314-16-3, 1-Ethyl-3-methylimidazolium tetrafluoroborate  
RL: FMU (Formation, unclassified); PRP (Properties); FORM (Formation, nonpreparative)  
(NMR and mol. motion and diffusion and ionic conductivity of ionic liqs. binary electrolytes)
- IT 56976-65-6, Lithium bis(trifluoromethanesulfonyl)imide  
464927-84-2  
RL: PRP (Properties)  
(NMR and mol. motion and diffusion and ionic conductivity of ionic liqs. binary electrolytes)

IT 99076-65-6, Lithium bis(trifluoromethanesulfonyl)imide  
 464927-84-2  
 RL: PRP (Properties)  
 (NMR and mol. motion and diffusion and ionic conductivity of ionic liqs.  
 binary electrolytes)  
 RN 90076-65-6 CAPLUS  
 CN Methanesulfonamide, 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]-,  
 lithium salt (1:1) (CA INDEX NAME)

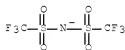


● Li

RN 464927-84-2 CAPLUS  
 CN Ethanaminium, N,N-diethyl-2-methoxy-N-methyl-, salt with  
 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]methanesulfonamide (1:1) (CA  
 INDEX NAME)  
 CM 1  
 CRN 464927-71-7  
 CMF C8 H20 N O



CM 2  
 CRN 98037-98-0  
 CMF C2 F6 N O4 S2

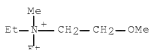


REFERENCE COUNT: 36 THERE ARE 36 CITED REFERENCES AVAILABLE FOR THIS  
 RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L39 ANSWER 7 OF 25 CAPLUS COPYRIGHT 2009 ACS on STN  
 ACCESSION NUMBER: 2007:1210225 CAPLUS [Full-text](#)  
 DOCUMENT NUMBER: 147:489053  
 TITLE: Polymer electrolyte and its manufacture  
 INVENTOR(S): Sato, Takaya; Aoki, Koji

PATENT ASSIGNEE(S): Institute of National Colleges of Technology, Japan;  
Enerstruct Inc.  
SOURCE: Jpn. Kokai Tokyo Koho, 21pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

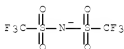
	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	JP 2007280912	A	20071025	JP 2006-172440	20060622
PRIORITY APPLN. INFO.:				JP 2006-70282	A 20060315
AB	The polymer electrolyte, especially for secondary lithium batteries, contains a linear polymer having an ionic group in the mol., an ionic liquid, and a lithium salt, and keeps solid shape by phys. interwinding the linear polymer. The polymer electrolyte is manufactured by polymerizing a monomer having double bond to synthesize the linear polymer, removing impurities from the polymer, and mixing the polymer with the ionic liquid and the Li salt.				
CC	52-2 (Electrochemical, Radiational, and Thermal Energy Technology)				
	Section cross-reference(s): 76				
ST	secondary battery polymer electrolyte manuf				
IT	Battery electrolytes				
	Polymer electrolytes (components and manufacture of polymer electrolytes for secondary lithium batteries)				
IT	887947-75-3P	954111-24-1P			
	RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) (components and manufacture of polymer electrolytes for secondary lithium batteries)				
IT	464927-84-2	827027-31-6			
	RL: RCT (Reactant); RACT (Reactant or reagent) (components and manufacture of polymer electrolytes for secondary lithium batteries)				
IT	108-32-7,	Propylene carbonate	872-36-6,	Vinylene carbonate	
	90076-65-6 RL: TEM (Technical or engineered material use); USES (Uses) (components and manufacture of polymer electrolytes for secondary lithium batteries)				
IT	464927-84-2				
	RL: RCT (Reactant); RACT (Reactant or reagent) (components and manufacture of polymer electrolytes for secondary lithium batteries)				
RN	464927-84-2	CAPLUS			
CN	Ethanaminium, N,N-diethyl-2-methoxy-N-methyl-, salt with 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]methanesulfonamide (1:1) (CA INDEX NAME)				
CM	1				
CRN	464927-71-7				
CMF	C8 H20 N O				



CM 2

CRN 98837-98-0

CMF C2 F6 N O4 S2

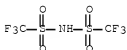


IT 90076-65-6

RL: TEM (Technical or engineered material use); USES (Uses)  
(components and manufacture of polymer electrolytes for secondary  
lithium batteries)

RN 90076-65-6 CAPLUS

CN Methanesulfonamide, 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]-,  
lithium salt (1:1) (CA INDEX NAME)



● Li

L39 ANSWER 8 OF 25 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2007:1178574 CAPLUS [Full-text](#)

DOCUMENT NUMBER: 147:472133

TITLE: Secondary batteries containing ion conducting polymer  
electrolytes and their manufacture

INVENTOR(S): Watanabe, Takeshi

PATENT ASSIGNEE(S): Sumitomo Bakelite Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 15pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 2007273362	A	20071018	JP 2006-99426	20060331
PRIORITY APPLN. INFO.:			JP 2006-99426	20060331
OTHER SOURCE(S):	MARPAT 147:472133			

AB The title battery is equipped with an ion conducting electrolyte containing a polymer, a Li salt, and a room temperature molten salt, where the electrolyte is fixed by a separator and is sandwiched between a cathode and an anode. The manufacture process comprises steps of impregnating the ion conducting

electrolyte into a separator, sandwiching the separator between a cathode and an anode, and then press heating. The battery provides long cycle life.

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)  
Section cross-reference(s): 38, 76

ST secondary lithium battery ion conducting polymer electrolyte  
molten salt

IT Secondary batteries  
(lithium; manufacture of secondary batteries containing ion conducting electrolytes)

IT Battery electrolytes  
Polymer electrolytes  
(manufacture of secondary batteries containing ion conducting electrolytes)

IT Ionic conductors  
(polymeric; manufacture of secondary batteries containing ion conducting electrolytes)

IT 7439-93-2DP, Lithium, polymer complexes 952592-48-2DP, lithium complexes  
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(electrolytes containing; manufacture of secondary batteries containing ion conducting electrolytes)

IT 99076-65-6, Lithium bis(trifluoromethylsulfonyl)imide  
464927-72-8 464927-84-2 743436-74-0  
RL: TEM (Technical or engineered material use); USES (Uses)  
(electrolytes containing; manufacture of secondary batteries containing ion conducting electrolytes)

IT 527919-44-4P  
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)  
(preparation and polymerization of; manufacture of secondary batteries containing ion conducting electrolytes)

IT 46830-22-2  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(reaction of, with acrylamidomethylpropanesulfonic acid; manufacture of secondary batteries containing ion conducting electrolytes)

IT 15214-89-8, 2-Acrylamido-2-methyl-1-propanesulfonic acid  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(reaction of, with acryloyloxyethylmethylbenzylammonium chloride; manufacture of secondary batteries containing ion conducting electrolytes)

IT 7439-93-2DP, Lithium, polymer complexes  
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(electrolytes containing; manufacture of secondary batteries containing ion conducting electrolytes)

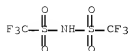
RN 7439-93-2 CAPLUS

CN Lithium (CA INDEX NAME)

Li

IT 99076-65-6, Lithium bis(trifluoromethylsulfonyl)imide  
464927-72-8 464927-84-2  
RL: TEM (Technical or engineered material use); USES (Uses)  
(electrolytes containing; manufacture of secondary batteries containing ion conducting electrolytes)

RN 90076-65-6 CAPLUS

CN Methanesulfonamide, 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]-,  
lithium salt (1:1) (CA INDEX NAME)

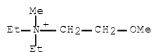
RN 464927-72-8 CAPLUS

CN Ethanaminium, N,N-diethyl-2-methoxy-N-methyl-, tetrafluoroborate(1-) (1:1)  
(CA INDEX NAME)

CM 1

CRN 464927-71-7

CMF C8 H20 N O



CM 2

CRN 14874-70-5

CMF B F4

CCI CCS



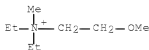
RN 464927-84-2 CAPLUS

CN Ethanaminium, N,N-diethyl-2-methoxy-N-methyl-, salt with  
1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]methanesulfonamide (1:1) (CA  
INDEX NAME)

CM 1

CRN 464927-71-7

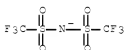
CMF C8 H20 N O



CM 2

CRN 98837-98-0

CMF C2 F6 N 04 S2



L39 ANSWER 9 OF 25 CAPLUS COPYRIGHT 2009 ACS on STN  
 ACCESSION NUMBER: 2007:1149844 CAPLUS Full-text  
 DOCUMENT NUMBER: 147:430352  
 TITLE: Ion conductive electrolyte and secondary battery using it  
 INVENTOR(S): Watanabe, Takeshi  
 PATENT ASSIGNEE(S): Sumitomo Bakelite Co., Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 15pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2007265886	A	20071011	JP 2006-91337	20060329
PRIORITY APPLN. INFO.:			JP 2006-91337	20060329

OTHER SOURCE(S): MARPAT 147:430352

AB The title electrolyte comprises Li salt, room-temperature molten salt, and a polymer which is synthesized by using a salt monomer composed of onium cation with polymerizable functional groups and organic anion with polymerizable functional groups, and the polymer is ion exchanged with ion-exchangeable compound in advance. The electrolyte has high ion conductivity. The secondary battery has high cycling performance.

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)  
 Section cross-reference(s): 38, 76

ST ion conductive electrolyte ion exchanged polymer battery

IT Battery electrolytes

Conducting polymers

Ionic conductors

(ion conductive electrolyte containing ion-exchanged polymer  
 obtained from salt monomer for battery with high cycling performance)

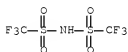
IT 99976-65-6, Lithium bis(trifluoromethylsulfonyl)imide

484927-84-2 933984-19-1D, ion-exchanged

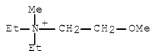
RL: TEM (Technical or engineered material use); USES (Uses)

(ion conductive electrolyte containing ion-exchanged polymer

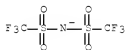
obtained from salt monomer for battery with high cycling performance)  
 IT 90876-65-6, Lithium bis(trifluoromethylsulfonyl)imide  
 464927-84-2  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (ion conductive electrolyte containing ion-exchanged polymer  
 obtained from salt monomer for battery with high cycling performance)  
 RN 90076-65-6 CAPLUS  
 CN Methanesulfonamide, 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]-,  
 lithium salt (1:1) (CA INDEX NAME)



RN 464927-84-2 CAPLUS  
 CN Ethanaminium, N,N-diethyl-2-methoxy-N-methyl-, salt with  
 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]methanesulfonamide (1:1) (CA  
 INDEX NAME)  
 CM 1  
 CRN 464927-71-7  
 CMF C8 H20 N O



CM 2  
 CRN 98837-98-0  
 CMF C2 F6 N O4 S2



L39 ANSWER 10 OF 25 CAPLUS COPYRIGHT 2009 ACS on STN  
 ACCESSION NUMBER: 2007:844951 CAPLUS [Full-text](#)  
 DOCUMENT NUMBER: 147:224439  
 TITLE: Ion conductor containing liquid crystals and ionic  
 liquid  
 INVENTOR(S): Murata, Shuhei; Kishii, Yutaka; Kii, Keisuke; Kato,

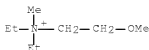
Takashi; Yoshio, Masashi; Kishimoto, Takeshi; Ono,  
 Hiroyuki  
 PATENT ASSIGNEE(S): Nitto Denko Corp., Japan; Tokyo University  
 SOURCE: Jpn. Kokai Tokkyo Koho, 8pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	JP 2007194152	A	20070802	JP 2006-13199	20060120
PRIORITY APPLN. INFO.:				JP 2006-13199	20060120
OTHER SOURCE(S):	MARPAT 147:224439				
AB	The ionic conductor comprises (A) liquid-crystalline compds. of RQ2C.tplbond.N (R = C2-10 linear alkyl(oxy); Q = p-phenylene), (B) 1st electrolytes that are solid at 23°, and (C) 2nd electrolytes that are liquid at 23°. Ionic conductors with high ionic conductivity in the direction right-angled to electrodes at a room temperature are provided with this invention.				
CC	76-2 (Electric Phenomena)				
ST	liq crystal ionic conductor electrolyte; ionic liq ion conductor solid electrolyte				
IT	Ionic liquids (electrolyte; ion conductor containing liquid crystals and ionic liquid)				
IT	Electrolytes Ionic conductors Liquid crystals (ion conductor containing liquid crystals and ionic liquid)				
IT	464927-72-8, N,N-Diethyl-N-methyl-N-(2-methoxyethyl)ammonium tetrafluoroborate 464927-84-2 RL: TEM (Technical or engineered material use); USES (Uses) (ionic liquid, electrolyte; ion conductor containing liquid crystals and ionic liquid)				
IT	90676-65-6, LiTFSI RL: TEM (Technical or engineered material use); USES (Uses) (solid electrolyte; ion conductor containing liquid crystals and ionic liquid)				
IT	464927-72-8, N,N-Diethyl-N-methyl-N-(2-methoxyethyl)ammonium tetrafluoroborate 464927-84-2 RL: TEM (Technical or engineered material use); USES (Uses) (ionic liquid, electrolyte; ion conductor containing liquid crystals and ionic liquid)				
RN	464927-72-8 CAPLUS				
CN	Ethanaminium, N,N-diethyl-2-methoxy-N-methyl-, tetrafluoroborate(1-) (1:1) (CA INDEX NAME)				

CM 1

CRN 464927-71-7

CMF C8 H20 N O



CM 2

CRN 14874-70-5

CMF B F4

CCI CCS



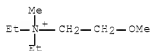
RN 464927-84-2 CAPLUS

CN Ethanaminium, N,N-diethyl-2-methoxy-N-methyl-, salt with  
1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]methanesulfonamide (1:1) (CA  
INDEX NAME)

CM 1

CRN 464927-71-7

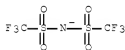
CMF C8 H20 N O



CM 2

CRN 98837-98-0

CMF C2 F6 N O4 S2

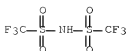


IT 90076-65-6, LiTFSi

RL: TEM (Technical or engineered material use); USES (Uses)  
(solid electrolyte; ion conductor containing liquid crystals and  
ionic liquid)

RN 90076-65-6 CAPLUS

CN Methanesulfonamide, 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]-,  
lithium salt (1:1) (CA INDEX NAME)



● Li

L39 ANSWER 11 OF 25 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2007:663074 CAPLUS Full-text

DOCUMENT NUMBER: 147:280705

TITLE: Comparative Study of Lithium Secondary Batteries Using Nonvolatile Safety Electrolytes

AUTHOR(S): Kobayashi, Yo; Mita, Yuichi; Seki, Shiro; Ohno, Yasutaka; Miyashiro, Hajime; Terada, Nobuyuki

CORPORATE SOURCE: Materials Science Research Laboratory, Central Research Institute of Electric Power Industry, Komae, Tokyo, 201-8511, Japan

SOURCE: Journal of the Electrochemical Society (2007), 154(7), A677-A681

CODEN: JESQAN; ISSN: 0013-4651

PUBLISHER: Electrochemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The phys. properties and electrochem. performances were systematically compared among a quaternary ammonium cation-based room-temperature ionic liquid electrolyte (ILE), a solid polymer electrolyte (SPE), and a conventional organic liquid electrolyte (OLE). The ionic conductivity, an interface impedance at the Li/electrolyte, and the activation energy at the interface were in the order of OLE > ILE > SPE. Cells using ILE and SPE exhibited sufficiently high discharge capacities of approx. 160 mAh/g at the 100th cycle using LiFePO<sub>4</sub> cathode. The required operation temps. at a rate of 1C discharge, for which the discharge capacity at 1C was >90% of that obtained at C/8, were 363 K using SPE and 333 K using ILE.

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST nonvolatile battery electrolyte lithium battery; ionic liq

lithium battery electrolyte; solid polymer electrolyte

lithium battery

IT Ionic liquids

(battery electrolytes; comparative study of lithium secondary

batteries using nonvolatile ionic liquid and solid polymer

electrolytes)

IT Polyoxoalkylenes, uses

RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)

(battery electrolytes; comparative study of lithium secondary

batteries using nonvolatile ionic liquid and solid polymer

electrolytes)

IT Electric impedance

(interfacial, of battery electrolytes; comparative study of

lithium secondary batteries using nonvolatile ionic liquid and solid

polymer electrolytes)

IT Battery electrolytes

(nonaq.; comparative study of lithium secondary batteries using

nonvolatile ionic liquid and solid polymer electrolytes)

IT Ionic conductivity

(of nonaq. battery electrolytes; comparative study of lithium

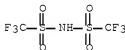
secondary batteries using nonvolatile ionic liquid and solid polymer electrolytes)

- IT 96-49-1, Ethylene carbonate 616-38-6, Dimethyl carbonate 21324-40-3, Lithium hexafluorophosphate 90076-65-6, Lithium bis(trifluoromethylsulfonyl)imide 115383-11-4 115401-75-7 464927-84-2  
 RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)  
 (battery electrolytes; comparative study of lithium secondary batteries using nonvolatile ionic liquid and solid polymer electrolytes)
- IT 21324-40-3, Lithium hexafluorophosphate 90076-65-6, Lithium bis(trifluoromethylsulfonyl)imide 464927-84-2  
 RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)  
 (battery electrolytes; comparative study of lithium secondary batteries using nonvolatile ionic liquid and solid polymer electrolytes)
- RN 21324-40-3 CAPLUS
- CN Phosphate(1-), hexafluoro-, lithium (1:1) (CA INDEX NAME)



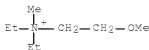
● Li+

- RN 90076-65-6 CAPLUS
- CN Methanesulfonamide, 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]-, lithium salt (1:1) (CA INDEX NAME)



● Li

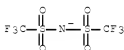
- RN 464927-84-2 CAPLUS
- CN Ethanaminium, N,N-diethyl-2-methoxy-N-methyl-, salt with 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]methanesulfonamide (1:1) (CA INDEX NAME)
- CM 1
- CRN 464927-71-7
- CMF C8 H20 N O



CM 2

CRN 98837-98-0

CMF C2 F6 N 04 S2



REFERENCE COUNT: 24 THERE ARE 24 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L39 ANSWER 12 OF 25 CAPLUS COPYRIGHT 2009 ACS on STN  
 ACCESSION NUMBER: 2007:458025 CAPLUS Full-text  
 DOCUMENT NUMBER: 146:425096  
 TITLE: Electrolyte resin compositions for forming  
 lithium ion-conductive electrolytes, and  
 secondary lithium batteries employing the  
 electrolytes

INVENTOR(S): Sakai, Nobuyuki  
 PATENT ASSIGNEE(S): Sumitomo Bakelite Co., Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 19pp.  
 CODEN: JKXXAF

DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2007106849	A	20070426	JP 2005-298163	20051012
PRIORITY APPLN. INFO.:			JP 2005-298163	20051012

AB The electrolyte resin compns. contain (A) monomer salts constituted by onium cations having polymerizable functional groups and organic anions having polymerizable functional groups, (B) ionic liqs., and (C) lithium salts, wherein anions constituting B and those constituting C have the same structure. The electrolytes show high ionic conductivity and excellent lithium ion-transport performance, and the batteries show excellent charge-discharge cycling performance.

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)  
 Section cross-reference(s): 38

ST lithium ion conductor electrolyte compn onium salt monomer;  
 ionic liq lithium ion conductor battery electrolyte; quaternary ammonium salt monomer polymer battery electrolyte; acrylic ammonium salt polymer battery electrolyte

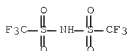
IT Battery electrolytes  
 (Li ion-conductive electrolyte resin compns. containing salt

- polymers and ionic liqs. for Li batteries)
- IT Ionic liquids  
(in Li ion-conductive electrolyte resin compns. containing salt polymers and ionic liqs. for Li batteries)
- IT Secondary batteries  
(lithium; Li ion-conductive electrolyte resin compns. containing salt polymers and ionic liqs. for Li batteries)
- IT Ionic conductors  
(polymeric, lithium ion; Li ion-conductive electrolyte resin compns. containing salt polymers and ionic liqs. for Li batteries)
- IT Quaternary ammonium compounds, uses  
RL: TEM (Technical or engineered material use); USES (Uses)  
(polymers; in Li ion-conductive electrolyte resin compns. containing salt polymers and ionic liqs. for Li batteries)
- IT 934273-22-0P  
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(electrolyte component; Li ion-conductive electrolyte resin compns. containing salt polymers and ionic liqs. for Li batteries)
- IT 850455-87-7  
RL: RCT (Reactant); TEM (Technical or engineered material use); RACT (Reactant or reagent); USES (Uses)  
(in Li ion-conductive electrolyte resin compns. containing salt polymers and ionic liqs. for Li batteries)
- IT 14283-07-9, Lithium tetrafluoroborate 90076-65-6,  
Lithium bistrifluoromethane sulfonylimide  
RL: TEM (Technical or engineered material use); USES (Uses)  
(in Li ion-conductive electrolyte resin compns. containing salt polymers and ionic liqs. for Li batteries)
- IT 101897-62-5 464927-84-2,  
N,N-Diethyl-N-methyl-N-(2-methoxyethyl)ammonium  
bis(trifluoromethanesulfonyl)imide  
RL: MOA (Modifier or additive use); USES (Uses)  
(ionic liqs.; in Li ion-conductive electrolyte resin compns. containing salt polymers and ionic liqs. for Li batteries)
- IT 14283-07-9, Lithium tetrafluoroborate 90076-65-6,  
Lithium bistrifluoromethane sulfonylimide  
RL: TEM (Technical or engineered material use); USES (Uses)  
(in Li ion-conductive electrolyte resin compns. containing salt polymers and ionic liqs. for Li batteries)
- RN 14283-07-9 CAPLUS
- CN Borate(1-), tetrafluoro-, lithium (1:1) (CA INDEX NAME)



● Li<sup>+</sup>

- RN 90076-65-6 CAPLUS
- CN Methanesulfonamide, 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]-,  
lithium salt (1:1) (CA INDEX NAME)



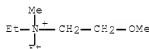
● Li

IT 464927-84-2, N,N-Diethyl-N-methyl-N-(2-methoxyethyl)ammonium  
bis(trifluoromethanesulfonyl)imide  
RL: MOA (Modifier or additive use); USES (Uses)  
(ionic liqs.; in Li ion-conductive electrolyte resin comps.  
containing salt polymers and ionic liqs. for Li batteries)  
RN 464927-84-2 CAPLUS  
CN Ethanaminium, N,N-diethyl-2-methoxy-N-methyl-, salt with  
1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]methanesulfonamide (1:1) (CA  
INDEX NAME)

CM 1

CRN 464927-71-7

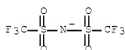
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CM 2

CRN 98837-98-0

CMF C2 F6 N O4 S2

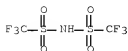


L39 ANSWER 13 OF 25 CAPLUS COPYRIGHT 2009 ACS on STN  
ACCESSION NUMBER: 2007:434868 CAPLUS Full-text  
DOCUMENT NUMBER: 146:405246  
TITLE: Ion-conducting electrolytes containing salt  
monomer-derived polymers and secondary batteries using  
them  
INVENTOR(S): Watanabe, Takeshi  
PATENT ASSIGNEE(S): Sumitomo Bakelite Co., Ltd., Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 13pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	JP 2007103064	A	20070419	JP 2005-288472	20050930
PRIORITY APPLN. INFO.:				JP 2005-288472	20050930
OTHER SOURCE(S):	MARPAT 146:405246				
AB	The title electrolytes comprise polymers, Li salts, and room-temperature molten salts having $\geq 5.0$ V voltage resistance, where the polymers are synthesized from salt monomers containing onium cations having polymerizing functional groups and organic anions having polymerizing functional groups. The electrolytes provide high ion conductivity and are especially suitable for secondary Li batteries.				
CC	52-2 (Electrochemical, Radiational, and Thermal Energy Technology)				
ST	Section cross-reference(s): 38, 76				
ST	ion conducting electrolyte salt monomer derived polymer secondary battery; room temp molten salt polymer electrolyte lithium secondary battery				
IT	Battery electrolytes Polymer electrolytes (ion-conducting electrolytes containing salt monomer-derived polymers for secondary batteries)				
IT	Secondary batteries (lithium; ion-conducting electrolytes containing salt monomer-derived polymers for secondary batteries)				
IT	Ionic conductors (polymeric; ion-conducting electrolytes containing salt monomer-derived polymers for secondary batteries)				
IT	90076-65-6, Lithium bis(trifluoromethane sulfone)imide RL: TEM (Technical or engineered material use); USES (Uses) (electrolyte; ion-conducting electrolytes containing salt monomer-derived polymers for secondary batteries)				
IT	933984-19-1DP, lithium complexes RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) (ion-conducting electrolytes containing salt monomer-derived polymers for secondary batteries)				
IT	7439-93-2D, Lithium, salt monomer-derived polymer complexes RL: TEM (Technical or engineered material use); USES (Uses) (ion-conducting electrolytes containing salt monomer-derived polymers for secondary batteries)				
IT	46830-22-2 RL: RCT (Reactant); RACT (Reactant or reagent) (reaction of, with acrylamidomethylpropanesulfonic acid; ion-conducting electrolytes containing salt monomer-derived polymers for secondary batteries)				
IT	15214-89-8, 2-Acrylamido-2-methyl-1-propanesulfonic acid RL: RCT (Reactant); RACT (Reactant or reagent) (reaction of, with acryloyloxyethylmethylbenzyl ammonium chloride; ion-conducting electrolytes containing salt monomer-derived polymers for secondary batteries)				
IT	464927-72-8 464927-84-2 743436-74-0 RL: TEM (Technical or engineered material use); USES (Uses) (room-temperature molten salt; ion-conducting electrolytes containing salt monomer-derived polymers for secondary batteries)				
IT	90076-65-6, Lithium bis(trifluoromethane sulfone)imide RL: TEM (Technical or engineered material use); USES (Uses) (electrolyte; ion-conducting electrolytes containing salt monomer-derived polymers for secondary batteries)				

RN 90076-65-6 CAPLUS

CN Methanesulfonamide, 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]-,  
lithium salt (1:1) (CA INDEX NAME)

● Li

IT 7439-93-2D, Lithium, salt monomer-derived polymer complexes

RL: TEM (Technical or engineered material use); USES (Uses)  
(ion-conducting electrolytes containing salt monomer-derived  
polymers for secondary batteries)

RN 7439-93-2 CAPLUS

CN Lithium (CA INDEX NAME)

Li

IT 464927-72-8 464927-84-2

RL: TEM (Technical or engineered material use); USES (Uses)  
(room-temperature molten salt; ion-conducting electrolytes containing  
salt monomer-derived polymers for secondary batteries)

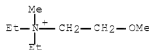
RN 464927-72-8 CAPLUS

CN Ethanaminium, N,N-diethyl-2-methoxy-N-methyl-, tetrafluoroborate(1-) (1:1)  
(CA INDEX NAME)

CM 1

CRN 464927-71-7

CMF C8 H20 N O



CM 2

CRN 14874-70-5

CMF B F4

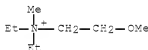
CCI CCS



RN 464927-84-2 CAPLUS  
 CN Ethanaminium, N,N-diethyl-2-methoxy-N-methyl-, salt with  
 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]methanesulfonamide (1:1) (CA  
 INDEX NAME)

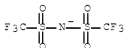
CM 1

CRN 464927-71-7  
 CMF C8 H20 N O



CM 2

CRN 98837-98-0  
 CMF C2 F6 N O4 S2



L39 ANSWER 14 OF 25 CAPLUS COPYRIGHT 2009 ACS on STN  
 ACCESSION NUMBER: 2007:31107 CAPLUS [Full-text](#)  
 DOCUMENT NUMBER: 146:125328  
 TITLE: Nonaqueous secondary lithium battery containing ionic  
 liquid and its manufacture  
 INVENTOR(S): Seki, Shiro; Kobayashi, Akira; Miyashiro, Hajime;  
 Usami, Akira; Terada, Nobuyuki  
 PATENT ASSIGNEE(S): Central Research Institute of Electric Power Industry,  
 Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 17pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2007005267	A	20070111	JP 2005-187435	20050627

PRIORITY APPLN. INFO.:

JP 2005-187435

20050627

AB The battery is characterized in that its cathode active mass is a powder of  $\text{Li}_x\text{MO}_y$  ( $M = \text{Co}, \text{Mn}, \text{Ni}, \text{V}, \text{Fe}$ ;  $x = 0.02\text{--}2.2$ ;  $y = 1.4\text{--}3$ ), which at least partly is surface-coated by ionically and electronically conductive substances with valence number stable on the powder surface. The battery is manufactured by aging the assembled battery at  $50\text{--}80^\circ$  for  $\geq 6$  h for allowing the ionic liquid to be impregnated into the cathode active mass. The secondary battery shows good stability and long cycle life.

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

IT Ionic liquids  
(electrolyte; conductor-coated cathode active mass for nonaq. secondary Li battery containing ionic liquid)

IT Battery electrolytes  
(ionic liquid; conductor-coated cathode active mass for nonaq. secondary Li battery containing ionic liquid)

IT 1303-86-2, Boria, uses 1314-23-4, Zirconia, uses 1344-28-1, Alumina, uses 7447-41-8, Lithium chloride, uses 7631-86-9, Silica, uses 7784-30-7, Aluminum phosphate 7789-24-4, Lithium fluoride, uses 10377-48-7, Lithium sulfate 12003-67-7 13463-67-7, Titania, uses 14283-07-9, Lithium tetrafluoroborate 17372-42-8 21324-46-3, Lithium hexafluorophosphate 39377-57-6, Lithium boride 90076-65-6 132843-44-8 184905-46-2, Lithium nitrogen phosphorus oxide 189217-59-2

RL: TEM (Technical or engineered material use); USES (Uses)  
(coating cathode active mass; conductor-coated cathode active mass for nonaq. secondary Li battery containing ionic liquid)

IT 12190-79-3, Cobalt lithium oxide ( $\text{LiCoO}_2$ )

RL: PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)  
(conductor-coated cathode active mass for nonaq. secondary Li battery containing ionic liquid)

IT 464927-84-2

RL: PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)  
(ionic liq electrolyte; conductor-coated cathode active mass for nonaq. secondary Li battery containing ionic liquid)

IT 7447-41-8, Lithium chloride, uses 7789-24-4, Lithium fluoride, uses 10377-48-7, Lithium sulfate 12003-67-7 14283-07-9, Lithium tetrafluoroborate 17372-42-8 21324-46-3, Lithium hexafluorophosphate 39377-57-6, Lithium boride 90076-65-6 132843-44-8 184905-46-2, Lithium nitrogen phosphorus oxide 189217-59-2

RL: TEM (Technical or engineered material use); USES (Uses)  
(coating cathode active mass; conductor-coated cathode active mass for nonaq. secondary Li battery containing ionic liquid)

RN 7447-41-8 CAPLUS

CN Lithium chloride ( $\text{LiCl}$ ) (CA INDEX NAME)

Cl-Li

RN 7789-24-4 CAPLUS

CN Lithium fluoride ( $\text{LiF}$ ) (CA INDEX NAME)

F-Li

RN 10377-48-7 CAPLUS  
 CN Sulfuric acid, lithium salt (1:2) (CA INDEX NAME)



●<sub>2</sub> Li

RN 12003-67-7 CAPLUS  
 CN Aluminate (AlO<sub>2</sub><sup>-</sup>), lithium (1:1) (CA INDEX NAME)



● Li<sup>+</sup>

RN 14283-07-9 CAPLUS  
 CN Borate(1-), tetrafluoro-, lithium (1:1) (CA INDEX NAME)



● Li<sup>+</sup>

RN 17372-42-8 CAPLUS  
 CN Boric acid (H<sub>3</sub>BO<sub>3</sub>), lithium salt (8CI, 9CI) (CA INDEX NAME)



●<sub>x</sub> Li

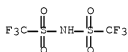
RN 21324-40-3 CAPLUS  
 CN Phosphate(1-), hexafluoro-, lithium (1:1) (CA INDEX NAME)



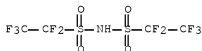
RN 39377-57-6 CAPLUS  
CN Lithium boride (CA INDEX NAME)

Component	Ratio	Component Registry Number
B	x	7440-42-8
Li	x	7439-93-2

RN 90076-65-6 CAPLUS  
CN Methanesulfonamide, 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]-,  
lithium salt (1:1) (CA INDEX NAME)



RN 132843-44-8 CAPLUS  
CN Ethanesulfonamide, 1,1,2,2,2-pentafluoro-N-[(1,1,2,2,2-pentafluoroethyl)sulfonyl]-, lithium salt (1:1) (CA INDEX NAME)



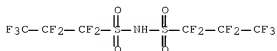
RN 184905-46-2 CAPLUS  
CN Lithium nitrogen phosphorus oxide (CA INDEX NAME)

Component	Ratio	Component Registry Number
N	x	17778-88-0
O	x	17778-80-2
P	x	7723-14-0

Li | x | 7439-93-2

RN 189217-59-2 CAPLUS

CN 1-Propanesulfonamide, 1,1,2,2,3,3,3-heptafluoro-N-[(1,1,2,2,3,3,3-heptafluoropropyl)sulfonyl]-, lithium salt (1:1) (CA INDEX NAME)

IT 12190-79-3, Cobalt lithium oxide (LiCoO<sub>2</sub>)

RL: PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)  
 (conductor-coated cathode active mass for nonaq. secondary Li battery containing ionic liquid)

RN 12190-79-3 CAPLUS

CN Cobalt lithium oxide (CoLiO<sub>2</sub>) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	2	17778-80-2
Co	1	7440-48-4
Li	1	7439-93-2

IT 464927-84-2

RL: PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)  
 (ionic liq electrolyte; conductor-coated cathode active mass for nonaq. secondary Li battery containing ionic liquid)

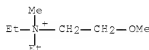
RN 464927-84-2 CAPLUS

CN Ethanaminium, N,N-diethyl-2-methoxy-N-methyl-, salt with 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]methanesulfonamide (1:1) (CA INDEX NAME)

CM 1

CRN 464927-71-7

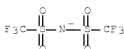
CMF C8 H20 N O



CM 2

CRN 98837-98-0

CMF C2 F6 N O4 S2



L39 ANSWER 15 OF 25 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2006:1345923 CAPLUS [Full-text](#)

DOCUMENT NUMBER: 147:388913

TITLE: High rate performance of a lithium polymer battery using a novel ionic liquid polymer composite

AUTHOR(S): Sato, Takaya; Marukane, Shoko; Narutomi, Takuya; Akao, Tadayoshi

CORPORATE SOURCE: Department of Material Engineering, Tsuruoka National College of Technology, Inooka, Tsuruoka, 997-8511, Japan

SOURCE: Journal of Power Sources (2007), 164(1), 390-396  
CODEN: JPSODZ; ISSN: 0378-7753

PUBLISHER: Elsevier B.V.

DOCUMENT TYPE: Journal

LANGUAGE: English

- AB This battery contains a composite electrolyte consisting of a Li salt dissolved in an ionic liquid (binary Li-IL) and an ultra high mol. weight ionic liquid polymer. The polymer has a MW of >106 and was prepared by bulk radical polymerization of a novel ionic liquid monomer, N,N-diethyl-N-(2-methacryloyl-ethyl)-N-methylammonium bis(trifluoromethyl-sulfonyl)imide (DEMM-TFSI). The polymer formed a binary Li-IL solid at a concentration of only 5%. High power electrode materials were used with this electrolyte. The demonstration vapor-free cell had a better discharge performance than a conventional Li polymer battery, at 40° it retained 83% of its discharge capacity at a 3 C current, and it also had good cycle performance. This Li ion cell with an ionic liquid polymer composite electrolyte performed, in terms of cell performance and cycle durability, at a practical level.
- CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)  
Section cross-reference(s): 38, 72
- ST ionic liq polymer composite electrolyte lithium polymer battery
- IT Battery electrolytes  
Polymer electrolytes  
(high-rate performance of lithium battery with ionic liquid polymer composite electrolyte)
- IT Secondary batteries  
(lithium; high-rate performance of lithium battery with ionic liquid polymer composite electrolyte)
- IT 12031-95-7, Lithium titanate (Li4Ti5O12)  
RL: TEM (Technical or engineered material use); USES (Uses)  
(anode; in high-rate performance of lithium battery with ionic liquid polymer composite electrolyte)
- IT 12057-17-9, Lithium manganese oxide (LiMn2O4)  
RL: TEM (Technical or engineered material use); USES (Uses)  
(cathode; in high-rate performance of lithium battery with ionic liquid polymer composite electrolyte)
- IT 108-32-7, Propylene carbonate 872-36-6, Vinylene carbonate  
RL: TEM (Technical or engineered material use); USES (Uses)  
(electrolyte containing; in high-rate performance of lithium battery with ionic liquid polymer composite electrolyte)
- IT 929711-40-0P

RL: SPN (Synthetic preparation); PREP (Preparation)  
(electrolyte; high-rate performance of lithium battery with ionic liquid polymer composite electrolyte)

IT 90076-65-6, LiTFSI 464927-84-2  
RL: TEM (Technical or engineered material use); USES (Uses)  
(electrolyte; in high-rate performance of lithium battery with ionic liquid polymer composite electrolyte)

IT 7440-44-0, Carbon, uses  
RL: TEM (Technical or engineered material use); USES (Uses)  
(hard, anode; in high-rate performance of lithium battery with ionic liquid polymer composite electrolyte)

IT 676257-09-3P  
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)  
(in preparation of ionic liquid polymer electrolyte for lithium batteries)

IT 12031-95-7, Lithium titanate (Li4Ti5O12)  
RL: TEM (Technical or engineered material use); USES (Uses)  
(anode; in high-rate performance of lithium battery with ionic liquid polymer composite electrolyte)

RN 12031-95-7 CAPLUS  
CN Lithium titanium oxide (Li4Ti5O12) (CA INDEX NAME)

Component	Ratio	Component
		Registry Number
O	12	17778-80-2
Ti	5	7440-32-6
Li	4	7439-93-2

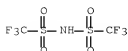
IT 12057-17-9, Lithium manganese oxide (LiMn2O4)  
RL: TEM (Technical or engineered material use); USES (Uses)  
(cathode; in high-rate performance of lithium battery with ionic liquid polymer composite electrolyte)

RN 12057-17-9 CAPLUS  
CN Lithium manganese oxide (LiMn2O4) (CA INDEX NAME)

Component	Ratio	Component
		Registry Number
O	4	17778-80-2
Mn	2	7439-96-5
Li	1	7439-93-2

IT 90076-65-6, LiTFSI 464927-84-2  
RL: TEM (Technical or engineered material use); USES (Uses)  
(electrolyte; in high-rate performance of lithium battery with ionic liquid polymer composite electrolyte)

RN 90076-65-6 CAPLUS  
CN Methanesulfonamide, 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]-, lithium salt (1:1) (CA INDEX NAME)

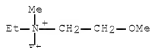


● Li

RN 464927-84-2 CAPLUS  
 CN Ethanaminium, N,N-diethyl-2-methoxy-N-methyl-, salt with  
 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]methanesulfonamide (1:1) (CA  
 INDEX NAME)

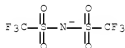
CM 1

CRN 464927-71-7  
 CMF C8 H20 N O



CM 2

CRN 98837-98-0  
 CMF C2 F6 N O4 S2



REFERENCE COUNT: 28 THERE ARE 28 CITED REFERENCES AVAILABLE FOR THIS  
 RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L39 ANSWER 16 OF 25 CAPLUS COPYRIGHT 2009 ACS on STN  
 ACCESSION NUMBER: 2006:268512 CAPLUS Full-text  
 DOCUMENT NUMBER: 144:315100  
 TITLE: Secondary nonaqueous electrolyte battery  
 INVENTOR(S): Matsui, Tooru; Deguchi, Masaki; Yoshizawa, Hiroshi  
 PATENT ASSIGNEE(S): Matsushita Electric Industrial Co., Ltd., Japan  
 SOURCE: PCT Int. Appl., 33 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2006030624	A1	20060323	WO 2005-JP15653	20050829
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GE, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG, KM, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA,				

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CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH,  
GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY,  
KG, KZ, MD, RU, TJ, TM  
JP 2006085912 A 20060330 JP 2004-266385 20040914  
CN 101019267 A 20070815 CN 2005-80030633 20050829  
DE 112005002021 T5 20070906 DE 2005-112005002021 20050829  
US 20070243463 A1 20071018 US 2007-575286 20070314  
KR 2007060108 A 20070612 KR 2007-707911 20070406  
PRIORITY APPLN. INFO.: JP 2004-266385 A 20040914  
WO 2005-JP15653 W 20050829

AB The battery has a cathode, an anode, and a non-aqueous electrolyte solution; where the electrolyte solution contains an onium compound, a Li salt and a chain carbonate having a C=C unsatd. bond. Preferably, the onium compound comprises a  $\geq 1$  compound selected from chain quaternary ammonium compounds, pyrrolidinium compounds, and piperidinium compounds; and the chain carbonate having a C=C unsatd. bond comprises a diallyl carbonate and/or an allyl Ph carbonate.

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST secondary lithium battery electrolyte onium compound linear carbonate

IT Battery electrolytes  
(electrolyte solns. containing onium compounds and linear carbonates for secondary lithium batteries)

IT Secondary batteries  
(lithium; electrolyte solns. containing onium compounds and linear carbonates for secondary lithium batteries)

IT 7782-42-5, Graphite, uses 12190-79-3, Cobalt lithium oxide (CoLiO2) 14283-97-9, Lithium tetrafluoroborate 21324-40-3, Lithium hexafluorophosphate 464927-72-8  
RL: DEV (Device component use); USES (Uses)  
(electrolyte solns. containing onium compounds and linear carbonates for secondary lithium batteries)

IT 96-49-1, Ethylene carbonate  
RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)  
(electrolyte solns. containing onium compounds and linear carbonates for secondary lithium batteries)

IT 96-48-0,  $\gamma$ -Butyrolactone 102-09-0, Diphenyl carbonate 108-32-7, Propylene carbonate 872-36-6, Vinylene carbonate 1469-70-1, Allyl ethyl carbonate 4427-92-3, Phenyl ethylene carbonate 4427-96-7, Vinyl ethylene carbonate 4437-85-8, Butylene carbonate 7570-02-7, Divinyl carbonate 7570-06-1, Ethyl vinyl carbonate 14264-06-3 15022-08-9, Diallyl carbonate 16308-68-2, Allyl phenyl carbonate 21240-34-6 32893-16-6, Methyl vinyl carbonate 35466-83-2, Allyl methyl carbonate 69444-47-9 173274-76-5 478315-53-6 863653-33-2 879866-94-1 879866-95-2  
RL: MOA (Modifier or additive use); USES (Uses)  
(electrolyte solns. containing onium compounds and linear carbonates for secondary lithium batteries)

IT 12190-79-3, Cobalt lithium oxide (CoLiO2) 14283-97-9, Lithium tetrafluoroborate 21324-40-3, Lithium hexafluorophosphate 464927-72-8  
RL: DEV (Device component use); USES (Uses)  
(electrolyte solns. containing onium compounds and linear carbonates for secondary lithium batteries)

RN 12190-79-3 CAPLUS

CN Cobalt lithium oxide (CoLiO2) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	2	17778-80-2
Co	1	7440-48-4
Li	1	7439-93-2

RN 14283-07-9 CAPLUS

CN Borate(1-), tetrafluoro-, lithium (1:1) (CA INDEX NAME)



RN 21324-40-3 CAPLUS

CN Phosphate(1-), hexafluoro-, lithium (1:1) (CA INDEX NAME)



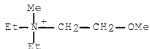
RN 464927-72-8 CAPLUS

CN Ethanaminium, N,N-diethyl-2-methoxy-N-methyl-, tetrafluoroborate(1-) (1:1)  
(CA INDEX NAME)

CM 1

CRN 464927-71-7

CMF C8 H20 N O



CM 2

CRN 14874-70-5

CMF B F4

CCI CCS



REFERENCE COUNT: 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L39 ANSWER 17 OF 25 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2006:82031 CAPLUS Full-text

DOCUMENT NUMBER: 144:334161

TITLE: Highly reversible lithium metal secondary battery using a room temperature ionic liquid/lithium salt mixture and a surface-coated cathode active material  
 AUTHOR(S): Seki, Shiro; Kobayashi, Yo; Miyashiro, Hajime; Ohno, Yasutaka; Usami, Akira; Mita, Yuichi; Watanabe, Masayoshi; Terada, Nobuyuki

CORPORATE SOURCE: Materials Science Research Laboratory, Central Research Institute of Electric Power Industry (CRIEPI), 2-11-1 Iwado-kita, Komae, 201-8511, Japan  
 SOURCE: Chemical Communications (Cambridge, United Kingdom) (2006), (5), 544-545

CODEN: CHCOFS; ISSN: 1359-7345

PUBLISHER: Royal Society of Chemistry

DOCUMENT TYPE: Journal

LANGUAGE: English

AB A high-voltage, high-capacity, long-life and safe rechargeable Li battery was developed based on stable ZrO<sub>2</sub>-coated LiCoO<sub>2</sub> cathode powder and a safe non-volatile room temperature ionic liquid

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST lithium battery ionic liq electrolyte zirconia coated cathode safety

IT 464927-34-2

RL: DEV (Device component use); USES (Uses)

(electrolyte containing; highly reversible lithium secondary battery with room temperature ionic liquid/lithium salt mixture and surface-coated cathode material)

IT 90076-65-6, Lithium bis(trifluoromethanesulfonyl)imide

RL: DEV (Device component use); USES (Uses)

(electrolyte; highly reversible lithium secondary battery with room temperature ionic liquid/lithium salt mixture and surface-coated cathode material)

IT 12190-79-3, Cobalt lithium oxide (CoLiO<sub>2</sub>)

RL: DEV (Device component use); USES (Uses)

(zirconium oxide-coated, cathode; highly reversible lithium secondary battery with room temperature ionic liquid/lithium salt mixture and surface-coated cathode material)

IT 464927-84-2

RL: DEV (Device component use); USES (Uses)

(electrolyte containing; highly reversible lithium secondary battery with room temperature ionic liquid/lithium salt mixture and surface-coated cathode material)

RN 464927-84-2 CAPLUS

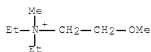
CN Ethanaminium, N,N-diethyl-2-methoxy-N-methyl-, salt with 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]methanesulfonamide (1:1) (CA

INDEX NAME)

CM 1

CRN 464927-71-7

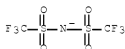
CMF C8 H20 N O



CM 2

CRN 98837-98-0

CMF C2 F6 N O4 S2



IT 90076-65-6, Lithium bis(trifluoromethanesulfonyl)imide

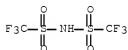
RL: DEV (Device component use); USES (Uses)

(electrolyte; highly reversible lithium secondary battery

with room temperature ionic liquid/lithium salt mixture and surface-coated cathode material)

RN 90076-65-6 CAPLUS

CN Methanesulfonamide, 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]-, lithium salt (1:1) (CA INDEX NAME)



● Li

IT 12190-79-3, Cobalt lithium oxide (CoLiO2)

RL: DEV (Device component use); USES (Uses)

(zirconium oxide-coated, cathode; highly reversible lithium secondary battery with room temperature ionic liquid/lithium salt mixture and surface-coated cathode material)

RN 12190-79-3 CAPLUS

CN Cobalt lithium oxide (CoLiO2) (CA INDEX NAME)

Component	Ratio	Component
		Registry Number

=====+=====+=====

O		2		17778-80-2
Co		1		7440-48-4
Li		1		7439-93-2

REFERENCE COUNT: 17 THERE ARE 17 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L39 ANSWER 18 OF 25 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2005:1090548 CAPLUS Full-text

DOCUMENT NUMBER: 144:195176

TITLE: Reversibility of Lithium Secondary Batteries Using a Room-Temperature Ionic Liquid Mixture and Lithium Metal

AUTHOR(S): Seki, Shiro; Kobayashi, Yo; Miyashiro, Hajime; Ohno, Yasutaka; Mita, Yuichi; Usami, Akira; Terada, Nobuyuki; Watanabe, Masayoshi

CORPORATE SOURCE: Central Research Institute of Electric Power Industry, Materials Science Research Laboratory, Tokyo, 201-8511, Japan

SOURCE: Electrochemical and Solid-State Letters (2005), 8(11), A577-A578

CODEN: ESLEF6; ISSN: 1099-0062

PUBLISHER: Electrochemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB A Li secondary battery with a room-temperature ionic liquid containing a Li salt as an electrolyte, a LiCoO<sub>2</sub> cathode, and Li anode, was prepared. This battery had near the theor. charge-discharge capacity for the 1st cycle and excellent reversibility - initial discharge capacity, 145 mA-h/g; 100th cycle discharge capacity, 118 mA-h/g, 4.2-3.0 V vs. Li/Li<sup>+</sup>, C/8, at room temperature

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST room temp ionic liq electrolyte lithium anode battery

IT Battery electrolytes  
(lithium secondary battery with room-temperature ionic liquid-containing electrolyte and lithium anode)

IT Secondary batteries  
(lithium; lithium secondary battery with room-temperature ionic liquid-containing electrolyte and lithium anode)

IT 12190-79-3, Cobalt lithium oxide (CoLiO<sub>2</sub>)  
RL: DEV (Device component use); USES (Uses)  
(cathode; lithium secondary battery with room-temperature ionic liquid-containing electrolyte and lithium anode)

IT 464927-84-2  
RL: DEV (Device component use); USES (Uses)  
(electrolyte containing; lithium secondary battery with room-temperature ionic liquid-containing electrolyte and lithium anode)

IT 90076-65-6, Lithium bis(trifluoromethanesulfonyl)imide  
RL: DEV (Device component use); USES (Uses)  
(electrolyte; lithium secondary battery with room-temperature ionic liquid-containing electrolyte and lithium anode)

IT 7439-93-2, Lithium, uses  
RL: DEV (Device component use); USES (Uses)  
(lithium secondary battery with room-temperature ionic liquid-containing electrolyte and lithium anode)

IT 12190-79-3, Cobalt lithium oxide (CoLiO<sub>2</sub>)  
RL: DEV (Device component use); USES (Uses)  
(cathode; lithium secondary battery with room-temperature ionic liquid-containing electrolyte and lithium anode)

(electrolyte and lithium anode)

RN 12190-79-3 CAPLUS

CN Cobalt lithium oxide (CoLiO2) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	2	17778-80-2
Co	1	7440-48-4
Li	1	7439-93-2

IT 464927-84-2

RL: DEV (Device component use); USES (Uses)

(electrolyte containing; lithium secondary battery with  
room-temperature ionic liquid-containing electrolyte and lithium anode)

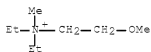
RN 464927-84-2 CAPLUS

CN Ethanaminium, N,N-diethyl-2-methoxy-N-methyl-, salt with  
1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]methanesulfonamide (1:1) (CA  
INDEX NAME)

CM 1

CRN 464927-71-7

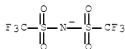
CMF C8 H20 N O



CM 2

CRN 98837-98-0

CMF C2 F6 N O4 S2



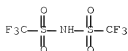
IT 90076-65-6, Lithium bis(trifluoromethanesulfonyl)imide

RL: DEV (Device component use); USES (Uses)

(electrolyte; lithium secondary battery with room-temperature ionic  
liquid-containing electrolyte and lithium anode)

RN 90076-65-6 CAPLUS

CN Methanesulfonamide, 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]-,  
lithium salt (1:1) (CA INDEX NAME)



● Li

IT 7439-93-2, Lithium, uses  
 RL: DEV (Device component use); USES (Uses)  
 (lithium secondary battery with room-temperature ionic liquid-containing electrolyte and lithium anode)  
 RN 7439-93-2 CAPLUS  
 CN Lithium (CA INDEX NAME)

Li

REFERENCE COUNT: 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L39 ANSWER 19 OF 25 CAPLUS COPYRIGHT 2009 ACS on STN  
 ACCESSION NUMBER: 2005:888183 CAPLUS Full-text  
 DOCUMENT NUMBER: 143:239770  
 TITLE: Manufacture of quaternary (alkoxyalkyl)ammonium salts from tertiary (hydroxyalkyl)amines via corresponding halides, and their electrolytes or electrolytic solutions for electrochemical devices  
 INVENTOR(S): Horie, Haruyuki; Yoshimura, Hiroyuki  
 PATENT ASSIGNEE(S): Tosoh Corp., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 19 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2005225843	A	20050825	JP 2004-38912	20040216
			JP 2004-38912	20040216

PRIORITY APPLN. INFO.:  
 OTHER SOURCE(S): MARPAT 143:239770

AB The salts are manufactured by treatment of R1R2NAOH [R1, R2 = C1-4 alkyl, AOH; R1R2 may form ring; A = (CRaH)1, [(CRbH)mO]nCRcH; Ra-Rc = H, Me, OH; 1, m = 1-6; n = 1-4] with ≥2 equivalent alkyl halides and ≥1 equivalent alkali metal hydrides in the presence of aprotic solvents, followed by anion exchange of the resulting halides with bis(perfluoroalkylsulfonyl)imides, perfluoroalkylsulfonates, perfluoroalkylcarboxylates, their conjugated acids, alkali metal salts, etc. The salts show high elec. conductivity at room temperature

IC ICM C07C213-06  
 ICS C07C217-08; C07D207-06; H01B001-06; H01M010-40; H01M014-00;  
 H01M008-02

CC 76-2 (Electric Phenomena)  
 Section cross-reference(s): 23

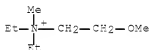
- ST quaternary alkoxyalkyl ammonium salt electrolyte manuf;  
electrolytic soln quaternary alkoxyalkyl ammonium salt; aprotic  
solvent tertiary hydroxyalkylamine alkyl halide quaternization; tertiary  
hydroxyalkylamine alkyl halide quaternization alkali hydride; anion  
exchange quaternary alkoxyalkyl halide perfluoroalkylsulfonilimide
- IT Solvents  
(aprotic, quaternization solvents; manufacture of quaternary  
(alkoxyalkyl)ammonium salts as electrolytes or  
electrolytic solns. for electrochem. devices by quaternization  
of tertiary (hydroxyalkyl)amines with alkyl halides, followed by anion  
exchange)
- IT Anion exchange  
Electrolytes  
Electrolytic solutions  
Ionic liquids  
Quaternization  
(manufacture of quaternary (alkoxyalkyl)ammonium salts as  
electrolytes or electrolytic solns. for electrochem.  
devices by quaternization of tertiary (hydroxyalkyl)amines with alkyl  
halides, followed by anion exchange)
- IT Alkali metal halides, preparation  
RL: BYP (Byproduct); PREP (Preparation)  
(manufacture of quaternary (alkoxyalkyl)ammonium salts as  
electrolytes or electrolytic solns. for electrochem.  
devices by quaternization of tertiary (hydroxyalkyl)amines with alkyl  
halides, followed by anion exchange)
- IT Alkyl halides  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(manufacture of quaternary (alkoxyalkyl)ammonium salts as  
electrolytes or electrolytic solns. for electrochem.  
devices by quaternization of tertiary (hydroxyalkyl)amines with alkyl  
halides, followed by anion exchange)
- IT Alkali metal hydrides  
RL: RGT (Reagent); RACT (Reactant or reagent)  
(manufacture of quaternary (alkoxyalkyl)ammonium salts as  
electrolytes or electrolytic solns. for electrochem.  
devices by quaternization of tertiary (hydroxyalkyl)amines with alkyl  
halides, followed by anion exchange)
- IT 7681-82-5P, Sodium iodide, preparation  
RL: BYP (Byproduct); PREP (Preparation)  
(manufacture of quaternary (alkoxyalkyl)ammonium salts as  
electrolytes or electrolytic solns. for electrochem.  
devices by quaternization of tertiary (hydroxyalkyl)amines with alkyl  
halides, followed by anion exchange)
- IT 464917-84-2P 693776-06-6P 757240-24-7P 763114-83-6P  
863031-17-6P 863031-18-9P 863031-20-3P  
RL: DEV (Device component use); IMF (Industrial manufacture); TEM  
(Technical or engineered material use); PREP (Preparation); USES (Uses)  
(manufacture of quaternary (alkoxyalkyl)ammonium salts as  
electrolytes or electrolytic solns. for electrochem.  
devices by quaternization of tertiary (hydroxyalkyl)amines with alkyl  
halides, followed by anion exchange)
- IT 4238-50-0P 16332-51-7P 672912-57-1P 863031-14-5P  
863031-15-6P 863031-16-7P 863031-19-0P  
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT  
(Reactant or reagent)  
(manufacture of quaternary (alkoxyalkyl)ammonium salts as  
electrolytes or electrolytic solns. for electrochem.  
devices by quaternization of tertiary (hydroxyalkyl)amines with alkyl  
halides, followed by anion exchange)

- IT 74-88-4, Iodomethane, reactions 75-03-6, Iodoethane 100-37-8, 2-Diethylaminoethanol 105-59-9, N-Methyldiethanolamine 1704-62-7, 2-(2-Dimethylaminoethoxy)ethanol 1862-07-3, 6-Dimethylamino-1-hexanol 2955-88-6, 1-(2-Hydroxyethyl)pyrrolidine 7601-90-3, Perchloric acid, reactions 16872-11-0, Tetrafluoroboric acid 16940-81-1, Hexafluorophosphoric acid 90076-65-6, Lithium bis(trifluoromethylsulfonyl)imide
- RL: RCT (Reactant); RACT (Reactant or reagent)  
(manufacture of quaternary (alkoxyalkyl)ammonium salts as electrolytes or electrolytic solns. for electrochem. devices by quaternization of tertiary (hydroxyalkyl)amines with alkyl halides, followed by anion exchange)
- IT 7646-69-7, Sodium hydride
- RL: RGT (Reagent); RACT (Reactant or reagent)  
(manufacture of quaternary (alkoxyalkyl)ammonium salts as electrolytes or electrolytic solns. for electrochem. devices by quaternization of tertiary (hydroxyalkyl)amines with alkyl halides, followed by anion exchange)
- IT 60-29-7, Diethyl ether, uses 109-99-9, Tetrahydrofuran, uses 110-71-4, 1,2-Dimethoxyethane 123-91-1, Dioxane, uses 142-96-1, Dibutyl ether
- RL: NUU (Other use, unclassified); USES (Uses)  
(quaternization solvent; manufacture of quaternary (alkoxyalkyl)ammonium salts as electrolytes or electrolytic solns. for electrochem. devices by quaternization of tertiary (hydroxyalkyl)amines with alkyl halides, followed by anion exchange)
- IT 464927-84-2P 863031-17-8P
- RL: DEV (Device component use); IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(manufacture of quaternary (alkoxyalkyl)ammonium salts as electrolytes or electrolytic solns. for electrochem. devices by quaternization of tertiary (hydroxyalkyl)amines with alkyl halides, followed by anion exchange)
- RN 464927-84-2 CAPLUS
- CN Ethanaminium, N,N-diethyl-2-methoxy-N-methyl-, salt with 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]methanesulfonamide (1:1) (CA INDEX NAME)

CM 1

CRN 464927-71-7

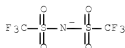
CMF C8 H20 N O



CM 2

CRN 98837-98-0

CMF C2 F6 N O4 S2



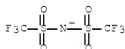
RN 863031-17-8 CAPLUS

CN Ethanaminium, 2-ethoxy-N-ethyl-N,N-dimethyl-, salt with  
1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]methanesulfonamide (1:1)  
(9CI) (CA INDEX NAME)

CM 1

CRN 98837-98-0

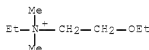
CMF C2 F6 N O4 S2



CM 2

CRN 23671-61-6

CMF C8 H20 N O



IT 672912-57-1F 863031-16-7P

RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT  
(Reactant or reagent)

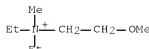
(manufacture of quaternary (alkoxyalkyl)ammonium salts as

electrolytes or electrolytic solns. for electrochem.

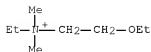
devices by quaternization of tertiary (hydroxyalkyl)amines with alkyl  
halides, followed by anion exchange)

RN 672912-57-1 CAPLUS

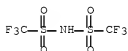
CN Ethanaminium, N,N-diethyl-2-methoxy-N-methyl-, iodide (1:1) (CA INDEX  
NAME)

● I<sup>-</sup>

RN 863031-16-7 CAPLUS  
 CN Ethanaminium, 2-ethoxy-N-ethyl-N,N-dimethyl-, iodide (1:1) (CA INDEX NAME)



IT 90076-65-6, Lithium bis(trifluoromethylsulfonyl)imide  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (manufacture of quaternary (alkoxyalkyl)ammonium salts as electrolytes or electrolytic solns. for electrochem. devices by quaternization of tertiary (hydroxyalkyl)amines with alkyl halides, followed by anion exchange)  
 RN 90076-65-6 CAPLUS  
 CN Methanesulfonamide, 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]-, lithium salt (1:1) (CA INDEX NAME)



L39 ANSWER 20 OF 25 CAPLUS COPYRIGHT 2009 ACS on STN  
 ACCESSION NUMBER: 2005:474802 CAPLUS Full-text  
 DOCUMENT NUMBER: 143:29430  
 TITLE: Battery electrolyte containing a compound including a specific structure  
 Ugawa, Shinsaku  
 INVENTOR(S): Sony Corporation, Japan  
 PATENT ASSIGNEE(S): U.S. Pat. Appl. Publ., 12 pp.  
 SOURCE: CODEN: USXXCO  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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US 20050118513	A1	20050602	US 2004-984606	20041109
JP 2005166290	A	20050623	JP 2003-399914	20031128
CN 1622386	A	20050601	CN 2004-10097408	20041129
PRIORITY APPLN. INFO.:			JP 2003-399914	A 20031128

AB The invention provides a battery coverable of inhibiting self-discharge even when the battery is left under the circumstances of high temps. and an electrolyte used for the battery. An electrode winding body in which a cathode and an anode are layered and wound with a separator in between is provided inside a battery can. An electrolytic solution is impregnated in the separator. The electrolytic solution contains at least one of compds. having structures  $X1N(SO_2-)_2$  or  $R1(R2)NSO_2-$  and an ionic liquid shown in  $[N(SO_2-)_2]-(X1)$  represents any of a H group, a halogen group. or a group containing C;  $R1$  and  $R2$  represent a group containing C, and  $R1$  and  $R2$  are bonded by N and C).

IC ICM H01M010-40

INCL 429339000; 429340000

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST battery electrolyte additive compd specific structure

IT Battery electrolytes  
Ionic liquids  
Secondary batteries  
(battery electrolyte containing compound including specific structure)

IT 96-49-1, Ethylene carbonate 616-38-6, Dimethyl carbonate 12190-79-3, Cobalt lithium oxide ( $CoLiO_2$ ) 21324-40-3, Lithium hexafluorophosphate  
RL: DEV (Device component use); USES (Uses)  
(battery electrolyte containing compound including specific structure)

IT 918-05-8 1709-50-8 2374-61-0 3989-37-5 7782-42-5, Graphite, uses 37595-74-7 145100-50-1 160974-18-5 464927-84-2 852677-26-0  
RL: MOA (Modifier or additive use); USES (Uses)  
(battery electrolyte containing compound including specific structure)

IT 12190-79-3, Cobalt lithium oxide ( $CoLiO_2$ ) 21324-40-3, Lithium hexafluorophosphate  
RL: DEV (Device component use); USES (Uses)  
(battery electrolyte containing compound including specific structure)

RN 12190-79-3 CAPLUS

CN Cobalt lithium oxide ( $CoLiO_2$ ) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	2	17778-80-2
Co	1	7440-48-4
Li	1	7439-93-2

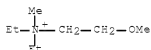
RN 21324-40-3 CAPLUS

CN Phosphate(1-), hexafluoro-, lithium (1:1) (CA INDEX NAME)

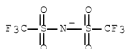


● Li+

IT 464927-84-2  
 RL: MOA (Modifier or additive use); USES (Uses)  
 (battery electrolyte containing compound including specific  
 structure)  
 RN 464927-84-2 CAPLUS  
 CN Ethanaminium, N,N-diethyl-2-methoxy-N-methyl-, salt with  
 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]methanesulfonamide (1:1) (CA  
 INDEX NAME)  
 CM 1  
 CRN 464927-71-7  
 CMF C8 H20 N O



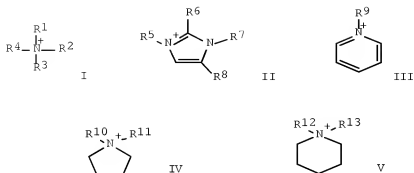
CM 2  
 CRN 98837-98-0  
 CMF C2 F6 N O4 S2



L39 ANSWER 21 OF 25 CAPLUS COPYRIGHT 2009 ACS on STN  
 ACCESSION NUMBER: 2005:98342 CAPLUS Full-text  
 DOCUMENT NUMBER: 142:180476  
 TITLE: Secondary nonaqueous electrolyte battery  
 INVENTOR(S): Kuboki, Takashi; Okuyama, Akio; Osaki, Takahisa;  
 Takami, Norio  
 PATENT ASSIGNEE(S): Toshiba Corp., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 24 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2005032551	A	20050203	JP 2003-196033	20030711
PRIORITY APPLN. INFO.:			JP 2003-196033	20030711
OTHER SOURCE(S):		MARPAT 142:180476		

GI



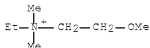
- AB The battery has a molten salt containing dicyanamide anion and cation ions selected from I [R1-4 = C<sub>8</sub> (O containing) alkyl, Ph, or benzyl groups], II [R5 and R7 = C<sub>8</sub> (O containing) alkyl groups; R6 and R8 = C<sub>8</sub> (O containing) alkyl groups or H], III [R9 = C<sub>8</sub> (O containing) alkyl groups], IV [R10 and R11 = C<sub>8</sub> (O containing) alkyl, Ph, or benzyl groups], or V [R12 and R13 = C<sub>8</sub> (O containing) alkyl, Ph, or benzyl groups]. The molten salt may also contain other anions selected from BF<sub>4</sub><sup>-</sup>, PF<sub>6</sub><sup>-</sup>, B(C<sub>2</sub>O<sub>4</sub>)<sup>-</sup>, perfluorocarbon sulfonate, perfluorocarbon sulfonimide, and perfluorosulfo cyanamide ions.
- IC ICM H01M010-40
- CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
- ST secondary battery nonaq electrolyte molten dicyanamide salt compn
- IT Battery electrolytes  
(comps. of molten salt nonaq. electrolytes for secondary lithium batteries)
- IT 872-36-6, Vinylene carbonate 51342-29-1, Silver dicyanamide 195199-57-6, Lithium dicyanamide 223437-11-4, N-Butyl-N-methylpyrrolidinium bis(trifluoromethanesulfonyl)imide 370865-80-8, N-Butyl-N-methylpyrrolidinium dicyanamide 827033-45-4  
 827033-46-5 827033-47-6 827033-48-7 827033-49-8 827033-50-1  
 827033-51-2 827033-52-3 827033-53-4 827033-54-5 827033-55-6  
 827033-58-9 827033-60-3 827033-62-5 827033-64-7 827033-65-8  
 827033-66-9 827033-68-1 827033-70-5 827033-71-6 827033-73-8  
 833480-20-9 833480-21-0 833480-22-1 833480-24-3
- RL: DEV (Device component use); USES (Uses)  
(comps. of molten salt nonaq. electrolytes for secondary lithium batteries)
- IT 195199-57-6, Lithium dicyanamide 833480-20-9  
 RL: DEV (Device component use); USES (Uses)  
(comps. of molten salt nonaq. electrolytes for secondary lithium batteries)
- RN 195199-57-6 CAPLUS
- CN Cyanamide, cyano-, lithium salt (9CI) (CA INDEX NAME)



RN 833480-20-9 CAPLUS  
 CN Ethanaminium, N-ethyl-2-methoxy-N,N-dimethyl-, salt with cyanocyanamide  
 (1:1) (9CI) (CA INDEX NAME)

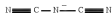
CM 1

CRN 101853-27-4  
 CMF C7 H18 N O



CM 2

CRN 17997-40-9  
 CMF C2 N3



L39 ANSWER 22 OF 25 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2005:29321 CAPLUS [Full-text](#)  
 DOCUMENT NUMBER: 142:117653  
 TITLE: Quaternary ammonium salt, electrolyte solution,  
 and electrochemical device  
 INVENTOR(S): Nishida, Tetsuo; Tashiro, Yasutaka; Tomisaki, Megumi;  
 Yamamoto, Masashi; Hirano, Kazutaka; Nabeshima,  
 Akihiro; Tokuda, Hiroaki; Sato, Kenji; Higono, Takashi  
 PATENT ASSIGNEE(S): Otsuka Chemical Co., Ltd., Japan; Stella Chemifa  
 Corporation  
 SOURCE: PCT Int. Appl., 122 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2005003108	A1	20050113	WO 2004-JP9623	20040630
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE,				

SN, TD, TG

AU 2004254231	A1	20050113	AU 2004-254231	20040630
CA 2530814	A1	20050113	CA 2004-2530814	20040630
EP 1642894	A1	20060405	EP 2004-747092	20040630
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, FI, RO, CY, TR, BG, CZ, EE, HU, PL, SK				
CN 1802362	A	20060712	CN 2004-80015741	20040630
TW 263632	B	20061011	TW 2004-93119367	20040630
JP 3950464	B2	20070801	JP 2005-511389	20040630
RU 2329257	C2	20080720	RU 2006-102854	20040630
KR 757166	B1	20070907	KR 2005-725342	20051229
US 20070042271	A1	20070222	US 2006-563125	20060626
JP 2007039460	A	20070215	JP 2006-238217	20060901
JP 4024824	B2	20071219		
JP 2007112811	A	20070510	JP 2006-353819	20061228
JP 2007306017	A	20071122	JP 2007-177516	20070705
PRIORITY APPLN. INFO.:			JP 2003-270225	A 20030701
			JP 2005-511389	A3 20040630
			WO 2004-JP9623	W 20040630
			JP 2006-238217	A3 20060901

OTHER SOURCE(S): MARPAT 142:117653

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X-  
I

- AB The ammonium salt is represented by I (R1 = C1-4 alkyl group; R2 = Me or Et group; and X- = F-containing anion) II (R1 and R2 are same as I; Y- = Cl-, Br-, I-, or MeOCO2-), or III (R1 and R2 are same as I; Z- = 1/2 CO32-, HCO3-, 1/2SO42-, ClO4-, CH3CO2-, or OH-). The electrolyte solution contains the above ammonium salt and an organic solvent mixture. The device, especially a secondary lithium battery or an elec. double layer capacitor, uses the above electrolyte solution.
- IC ICM C07D295-08  
ICS H01M010-40; H01G009-038
- CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)  
Section cross-reference(s): 76
- ST secondary lithium battery capacitor electrolyte soln e;  
electrolyte quaternary ammonium salt org solvent
- IT Capacitors  
(double layer; electrolyte solns. containing quaternary ammonium salts and organic solvents for secondary lithium batteries and capacitors)
- IT Battery electrolytes  
(electrolyte solns. containing quaternary ammonium salts and organic solvents for secondary lithium batteries and capacitors)
- IT Secondary batteries  
(lithium; electrolyte solns. containing quaternary ammonium salts and organic solvents for secondary lithium batteries and capacitors)
- IT 75-05-8, Acetonitrile, uses 96-49-1, Ethylene carbonate 108-32-7, Propylene carbonate 616-38-6, Dimethyl carbonate 623-53-0, Ethyl methyl carbonate 14283-07-9, Lithium tetrafluoroborate 21324-48-3, Lithium hexafluorophosphate 30076-65-6, Lithium bis(trifluoromethane sulfonyl) imide 615564-11-9
- RL: DEV (Device component use); USES (Uses)  
(electrolyte solns. containing quaternary ammonium salts and organic

solvents for secondary lithium batteries and capacitors)

IT 820958-79-0  
 RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)  
 (electrolyte solns. containing quaternary ammonium salts and organic solvents for secondary lithium batteries and capacitors)

IT 464927-72-8 820958-80-3 820958-81-4 820958-82-5  
 820958-83-6 820958-84-7 820958-85-8 820958-86-9 820958-87-0  
 820958-88-1 820958-89-2 820958-90-5 820958-91-6 820958-93-8  
 820958-94-9 820958-96-1 820958-98-3 820958-99-4 820959-01-1  
 820959-03-3 820959-04-4  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (electrolyte solns. containing quaternary ammonium salts and organic solvents for secondary lithium batteries and capacitors)

IT 14283-07-9, Lithium tetrafluoroborate 21324-40-3,  
 Lithium hexafluorophosphate 90076-65-6, Lithium  
 bis(trifluoromethane sulfonyl) imide  
 RL: DEV (Device component use); USES (Uses)  
 (electrolyte solns. containing quaternary ammonium salts and organic solvents for secondary lithium batteries and capacitors)

RN 14283-07-9 CAPLUS  
 CN Borate(1-), tetrafluoro-, lithium (1:1) (CA INDEX NAME)



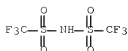
● Li+

RN 21324-40-3 CAPLUS  
 CN Phosphate(1-), hexafluoro-, lithium (1:1) (CA INDEX NAME)



● Li+

RN 90076-65-6 CAPLUS  
 CN Methanesulfonamide, 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]-,  
 lithium salt (1:1) (CA INDEX NAME)



IT 464927-72-8

RL: TEM (Technical or engineered material use); USES (Uses)  
(electrolyte solns. containing quaternary ammonium salts and organic  
solvents for secondary lithium batteries and capacitors)

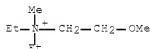
RN 464927-72-8 CAPLUS

CN Ethanaminium, N,N-diethyl-2-methoxy-N-methyl-, tetrafluoroborate(1-) (1:1)  
(CA INDEX NAME)

CM 1

CRN 464927-71-7

CMF C8 H20 N O



CM 2

CRN 14874-70-5

CMF B F4

CCI CCS



REFERENCE COUNT: 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS  
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L39 ANSWER 23 OF 25 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2004:910324 CAPLUS Full-text

DOCUMENT NUMBER: 142:138184

TITLE: Ionic liquids containing carbonate solvent as  
electrolytes for lithium ion cells

AUTHOR(S): Sato, Takaya; Maruo, Tatsuya; Marukane, Shoko; Takagi,  
Kentaro

CORPORATE SOURCE: Nisshinbo Industries Incorporated, Research and  
Development Center, 1-2-3 Onodai, Midoriku, Chiba,  
267-0056, Japan

SOURCE: Journal of Power Sources (2004), 138(1-2), 253-261

CODEN: JPSODZ; ISSN: 0378-7753

PUBLISHER:  
DOCUMENT TYPE:  
LANGUAGE:

Elsevier B.V.  
Journal  
English

- AB A novel aliphatic quaternary ammonium type ionic liquid, N,N-diethyl-N-methyl-N-(2-methoxymethyl)ammonium bis(trifluoromethylsulfonyl)imide (DEME-TFSI), is a practical and useful ionic liquid as an electrolyte for electrochem. devices. Its desirable properties include nonflammability, a quite wide potential window (5.4 V), and a high ionic conductivity (4.0 mS cm<sup>-1</sup> at 30°). The authors attempted to use Li-binary ionic liqs. composed of LiTFSI and DEME-TFSI as an electrolyte in a lithium deposition and dissoln. media. However, although DEME-TFSI had a relatively large potential window among recently reported ionic liquid species, it decomposed on the neg. electrode at a pos. potential relative to that of the Li/Li+. To provide a solid electrolyte interface that would overcome the reductive decomposition of the electrolyte, the authors added two kinds of organic solvent to the Li-binary ionic liqs. The selected additives, vinylene carbonate (VC) and ethylene carbonate (EC) effectively prevented the decomposition and improved the reversible lithium deposition/dissoln. To evaluate the potential of these liqs. with additives as electrolytes for lithium ion batteries, the authors prepared demonstration cells composed of a graphite/Li-DEME-TFSI containing 10% of VC/LiCoO<sub>2</sub> and studied its cell performance. This is the 1st report of the knowledge that a lithium ion cell with an ionic liquid electrolyte performed, in terms of cell performance and cycle durability, at a level of practical utility.
- CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)  
Section cross-reference(s): 72, 76
- ST ionic liq carbonate solvent electrolyte lithium secondary battery; battery electrolyte electrode interface layer quaternary ammonium ionic liq
- IT Electric capacitance  
(charging and discharging of assembled batteries using ionic liqs. and carbonates; ionic liqs. containing carbonate solvent as electrolytes for lithium ion cells)
- IT Electric current-potential relationship  
(cyclic voltammograms of cells using ionic liqs.; ionic liqs. containing carbonate solvent as electrolytes for lithium ion cells)
- IT Battery electrolytes  
Electrode-electrolyte interface  
Ionic liquids  
(ionic liqs. containing carbonate solvent as electrolytes for lithium ion cells)
- IT Fluoropolymers, uses  
RL: DEV (Device component use); USES (Uses)  
(ionic liqs. containing carbonate solvent as electrolytes for lithium ion cells)
- IT Carbon black, uses  
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)  
(ionic liqs. containing carbonate solvent as electrolytes for lithium ion cells)
- IT Secondary batteries  
(lithium; ionic liqs. containing carbonate solvent as electrolytes for lithium ion cells)
- IT 24937-79-9, PVDF  
RL: DEV (Device component use); USES (Uses)  
(d.p. about 1109; ionic liqs. containing carbonate solvent as electrolytes for lithium ion cells)
- IT 96-49-1, Ethylene carbonate 872-36-6, Vinylene carbonate 12190-79-3, Cobalt lithium oxide (CoLiO<sub>2</sub>) 39076-65-6,

Lithium bis(trifluoromethanesulfonyl)imide

RL: DEV (Device component use); USES (Uses)

(ionic liqs. containing carbonate solvent as electrolytes for lithium ion cells)

IT 464927-72-8P 464927-84-2P

RL: DEV (Device component use); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)

(ionic liqs. containing carbonate solvent as electrolytes for lithium ion cells)

IT 7429-90-5, Aluminum, uses

RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)

(ionic liqs. containing carbonate solvent as electrolytes for lithium ion cells)

IT 7440-44-0, Carbon, uses

RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)

(mesocarbon microbeads; ionic liqs. containing carbonate solvent as electrolytes for lithium ion cells)

IT 12190-79-3, Cobalt lithium oxide (CoLiO<sub>2</sub>) 90076-65-6,

Lithium bis(trifluoromethanesulfonyl)imide

RL: DEV (Device component use); USES (Uses)

(ionic liqs. containing carbonate solvent as electrolytes for lithium ion cells)

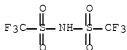
RN 12190-79-3 CAPLUS

CN Cobalt lithium oxide (CoLiO<sub>2</sub>) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	2	17778-80-2
Co	1	7440-48-4
Li	1	7439-93-2

RN 90076-65-6 CAPLUS

CN Methanesulfonamide, 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]-, lithium salt (1:1) (CA INDEX NAME)



● Li

IT 464927-72-8P 464927-84-2P

RL: DEV (Device component use); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)

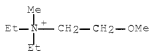
(ionic liqs. containing carbonate solvent as electrolytes for lithium ion cells)

RN 464927-72-8 CAPLUS

CN Ethanaminium, N,N-diethyl-2-methoxy-N-methyl-, tetrafluoroborate(1-) (1:1) (CA INDEX NAME)

CM 1

CRN 464927-71-7  
 CMF C8 H20 N O

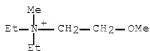


CM 2  
 CRN 14874-70-5  
 CMF B F4  
 CCI CCS

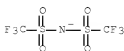


RN 464927-84-2 CAPLUS  
 CN Ethanaminium, N,N-diethyl-2-methoxy-N-methyl-, salt with  
 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]methanesulfonamide (1:1) (CA  
 INDEX NAME)

CM 1  
 CRN 464927-71-7  
 CMF C8 H20 N O



CM 2  
 CRN 98837-98-0  
 CMF C2 F6 N O4 S2

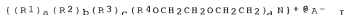


REFERENCE COUNT: 22 THERE ARE 22 CITED REFERENCES AVAILABLE FOR THIS

RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L39 ANSWER 24 OF 25 CAPLUS COPYRIGHT 2009 ACS on STN  
 ACCESSION NUMBER: 2004:696333 CAPLUS Full-text  
 DOCUMENT NUMBER: 141:206821  
 TITLE: Preparation of quaternary ammonium salts as electrolytes  
 INVENTOR(S): Honma, Nobuaki; Yamada, Yoshimi  
 PATENT ASSIGNEE(S): Koei Chemical Company, Limited, Japan  
 SOURCE: PCT Int. Appl., 35 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

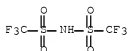
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004072015	A1	20040826	WO 2004-JP1247	20040206
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
EP 1595863	A1	20051116	EP 2004-708889	20040206
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
US 20060166103	A1	20060727	US 2005-545417	20050812
US 7411092	B2	20080812		
PRIORITY APPLN. INFO.:			JP 2003-35022	A 20030213
			JP 2003-36875	A 20030214
			WO 2004-JP1247	W 20040206
OTHER SOURCE(S):		MARPAT 141:206821		
GI				



AB Title compds. I [R1, R2, R3 = alkyl, etc.; R4 = Me, ethyl; a, b, c = 0-3; p = 1-4; a + b + c ≤ 3; a + b + c + p = 4; A- = (CF3SO2)2N-, etc.] were prepared. For example, a mixture of dimethylethylamine (5.12 g), 1-bromo-2-(methoxyethoxy)ethane (14.2 g) in CH3CN (10.2 g) was stirred at reflux for 24 h to give N,N-dimethyl-N-ethyl-N-methoxyethoxyethylammonium bromide (18.4 g). A mixture of resulting product (18.4 g), active carbon (0.2 g) in water (36.8 g) was stirred for 1 h, followed by treatment with (CF3SO2)2NLi (20.3 g) for 1 h and extraction with CH2Cl2 afforded compound I [R1 = R2 = methyl; R3 = ethyl; R4 = methoxy; a = b = c = d = 1; A- = (CF3SO2)2N-] (26.3 g). The ionic conductance of compound I [R1 = R2 = methyl; R3 = ethoxyethyl; R4 = methoxy; A- = (CF3SO2)2N-] was 1.80 mS/cm at 25 °C. Compds. I are claimed useful as electrolytes.

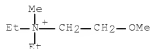
IC ICM C07C217-08  
 CC 23-4 (Aliphatic Compounds)  
 Section cross-reference(s): 52  
 ST quaternary ammonium salt prepn electrolyte

- IT Electrolytes  
(preparation of quaternary ammonium salts as electrolytes)
- IT Quaternary ammonium compounds, preparation  
RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(preparation of quaternary ammonium salts as electrolytes)
- IT 50-00-0, Formaldehyde, reactions 110-76-9, 2-Ethoxyethylamine 598-56-1  
54149-17-6 90076-65-6  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(preparation of quaternary ammonium salts as electrolytes)
- IT 67036-05-9P 743436-91-1P 743436-93-3P  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(preparation of quaternary ammonium salts as electrolytes)
- IT 384347-49-3P 384347-50-6P 464927-84-2P 743436-73-9P  
743436-74-0P 743436-76-2P 743436-78-4P 743436-80-8P 743436-81-9P  
743436-82-0P 743436-83-1P 743436-84-2P 743436-86-4P 743436-88-6P  
743436-90-0P  
RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(preparation of quaternary ammonium salts as electrolytes)
- IT 90076-65-6  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(preparation of quaternary ammonium salts as electrolytes)
- RN 90076-65-6 CAPLUS
- CN Methanesulfonamide, 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]-, lithium salt (1:1) (CA INDEX NAME)



● Li

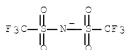
- IT 464927-84-2P  
RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(preparation of quaternary ammonium salts as electrolytes)
- RN 464927-84-2 CAPLUS
- CN Ethanaminium, N,N-diethyl-2-methoxy-N-methyl-, salt with 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]methanesulfonamide (1:1) (CA INDEX NAME)
- CM 1
- CRN 464927-71-7
- CMF C8 H20 N O



CM 2

CRN 98837-98-0

CMF C2 F6 N O4 S2



L39 ANSWER 25 OF 25 CAPLUS COPYRIGHT 2009 ACS on STN  
 ACCESSION NUMBER: 2004:204132 CAPLUS Full-text  
 DOCUMENT NUMBER: 140:256244  
 TITLE: Nonaqueous electrolyte solution and secondary nonaqueous electrolyte battery  
 INVENTOR(S): Maruo, Tatsuya; Marukane, Syoko; Masuda, Gen; Sato, Takaya  
 PATENT ASSIGNEE(S): Nissinbo Industries, Inc., Japan  
 SOURCE: PCT Int. Appl., 63 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004021500	A1	20040311	WO 2003-JP10629	20030822
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW			
RW:	GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			
JP 2004146346	A	20040520	JP 2003-149584	20030527
CA 2497109	A1	20040311	CA 2003-2497109	20030822
AU 2003262275	A1	20040319	AU 2003-262275	20030822
EP 1548866	A1	20050629	EP 2003-791250	20030822
R:	AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK			
CN 1679200	A	20051005	CN 2003-820589	20030822
US 20060035137	A1	20060216	US 2005-525818	20050225
PRIORITY APPLN. INFO.:			JP 2002-248004	A 20020828
			JP 2003-149584	A 20030527
			WO 2003-JP10629	W 20030822

AB The electrolyte comprises an ionic liquid I: {[R1R2R3R4X]+.Y [R1-4 = C1-5 alkyl or alkoxy alkyl group; R'-O-(CH2)n (R' = Me or Et; n = integer 1-4); ≥2 of R1-4 may form a ring; ≥1 of R1-4 = alkoxy alkyl group; X = N or P; and Y = monovalent anion]}, having m.p. ≤50°; a compound reductively decomposed at a

nobler potential than the ionic liquid; and a Li salt. The battery comprises a cathode, containing a Li composite oxide; an anode, containing a Li-intercalating carbonaceous material or Li; a separator between the 2 electrodes; and the above electrolyte solution

IC ICM H01M010-40  
ICS H01M002-16; C07C217-08; C07C311-48; C07D233-56

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST secondary battery lithium salt electrolyte ionic compd;  
electrolyte ionic compd quaternary ammonium salt quaternary phosphonium salt

IT Carbonaceous materials (technological products)  
RL: DEV (Device component use); USES (Uses)  
(anode; electrolyte solns. containing quaternary ammonium or phosphonium salts for secondary batteries)

IT Battery electrolytes  
Secondary batteries  
(electrolyte solns. containing quaternary ammonium or phosphonium salts for secondary batteries)

IT Polyolefins  
Polyurethanes, uses  
RL: DEV (Device component use); USES (Uses)  
(electrolyte solns. containing quaternary ammonium or phosphonium salts for secondary batteries)

IT 12190-79-3, Cobalt lithium oxide (CoLiO2)  
RL: DEV (Device component use); USES (Uses)  
(cathode; electrolyte solns. containing quaternary ammonium or phosphonium salts for secondary batteries)

IT 96-49-1, Ethylene carbonate 872-36-6, Vinylene carbonate 14283-07-9, Lithium tetrafluoroborate 21324-40-3, Lithium hexafluorophosphate 65039-09-0, 1-Ethyl-3-methyl imidazolium chloride 90076-65-6 464927-72-8 464927-84-2 669071-51-6  
RL: DEV (Device component use); USES (Uses)  
(electrolyte solns. containing quaternary ammonium or phosphonium salts for secondary batteries)

IT 9004-34-6, Cellulose, uses  
RL: DEV (Device component use); USES (Uses)  
(separator; electrolyte solns. containing quaternary ammonium or phosphonium salts for secondary batteries)

IT 12190-79-3, Cobalt lithium oxide (CoLiO2)  
RL: DEV (Device component use); USES (Uses)  
(cathode; electrolyte solns. containing quaternary ammonium or phosphonium salts for secondary batteries)

RN 12190-79-3 CAPLUS

CN Cobalt lithium oxide (CoLiO2) (CA INDEX NAME)

Component	Ratio	Component
		Registry Number
O	2	17778-80-2
Co	1	7440-48-4
Li	1	7439-93-2

IT 14283-07-9, Lithium tetrafluoroborate 21324-40-3, Lithium hexafluorophosphate 90076-65-6 464927-72-8 464927-84-2  
RL: DEV (Device component use); USES (Uses)  
(electrolyte solns. containing quaternary ammonium or phosphonium salts for secondary batteries)

RN 14283-07-9 CAPLUS

CN Borate(1-), tetrafluoro-, lithium (1:1) (CA INDEX NAME)



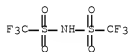
RN 21324-40-3 CAPLUS

CN Phosphate(1-), hexafluoro-, lithium (1:1) (CA INDEX NAME)



RN 90076-65-6 CAPLUS

CN Methanesulfonamide, 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]-, lithium salt (1:1) (CA INDEX NAME)



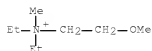
RN 464927-72-8 CAPLUS

CN Ethanaminium, N,N-diethyl-2-methoxy-N-methyl-, tetrafluoroborate(1-) (1:1) (CA INDEX NAME)

CM 1

CRN 464927-71-7

CMF C8 H20 N O



CM 2

CRN 14874-70-5

CMF B F4

CCI CCS



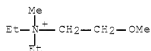
RN 464927-84-2 CAPLUS

CN Ethanaminium, N,N-diethyl-2-methoxy-N-methyl-, salt with  
1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]methanesulfonamide (1:1) (CA  
INDEX NAME)

CM 1

CRN 464927-71-7

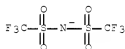
CMF C8 H20 N O



CM 2

CRN 98837-98-0

CMF C2 F6 N O4 S2

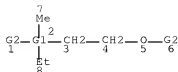


REFERENCE COUNT: 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS  
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

FILE 'HOME' ENTERED AT 16:11:17 ON 12 JAN 2009

## SEARCH HISTORY

=> => d stat que l6; d his nofile  
L3 STR



VAR G1=N/P  
VAR G2=ME/ET  
NODE ATTRIBUTES:  
DEFAULT MLEVEL IS ATOM  
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:  
RING(S) ARE ISOLATED OR EMBEDDED  
NUMBER OF NODES IS 8

STEREO ATTRIBUTES: NONE  
L6 54 SEA FILE=REGISTRY SSS FUL L3

100.0% PROCESSED 554941 ITERATIONS  
SEARCH TIME: 00.00.05

54 ANSWERS

(FILE 'HOME' ENTERED AT 15:22:43 ON 12 JAN 2009)

FILE 'CAPLUS' ENTERED AT 15:22:59 ON 12 JAN 2009  
E US2005-525818/APPS

L1 1 SEA SPE=ON ABB=ON US2005-525818/AP  
D SCAN  
SEL RN

FILE 'REGISTRY' ENTERED AT 15:25:17 ON 12 JAN 2009

L2 11 SEA SPE=ON ABB=ON (12190-79-3/BI OR 14283-07-9/BI OR  
21324-40-3/BI OR 464927-72-8/BI OR 464927-84-2/BI OR 65039-09-0  
/BI OR 669071-51-6/BI OR 872-36-6/BI OR 9004-34-6/BI OR  
90076-65-6/BI OR 96-49-1/BI)  
D SCAN

L3 STR  
L4 0 SEA SSS SAM L3  
L5 554941 SEA SSS FUL L3 EXTEND  
L6 54 SEA SSS FUL L3

SAVE TEMP L6 CRE818FULL/A

L7 0 SEA SPE=ON ABB=ON MARUO T?/AU  
L8 0 SEA SPE=ON ABB=ON MARUKANE S?/AU  
L9 0 SEA SPE=ON ABB=ON MASUDA G?/AU  
L10 0 SEA SPE=ON ABB=ON SATO T?/AU

FILE 'CAPLUS' ENTERED AT 15:29:34 ON 12 JAN 2009

L11 439 SEA SPE=ON ABB=ON MARUO T?/AU  
L12 6 SEA SPE=ON ABB=ON MARUKANE S?/AU  
L13 159 SEA SPE=ON ABB=ON MASUDA G?/AU

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L14      26317 SEA SPE=ON  ABB=ON  SATO T2/AU
L15      149 SEA SPE=ON  ABB=ON  L6
L16      1 SEA SPE=ON  ABB=ON  L1 AND L12
L17      20 SEA SPE=ON  ABB=ON  (L1 OR L11 OR L12 OR L13 OR L14) AND L15
L18      1 SEA SPE=ON  ABB=ON  L1 AND L15
          D SCAN

FILE 'REGISTRY' ENTERED AT 15:31:05 ON 12 JAN 2009
L19      5 SEA SPE=ON  ABB=ON  L6 AND P/ELS
          D SCAN

FILE 'CAPLUS' ENTERED AT 15:35:22 ON 12 JAN 2009
L20      ANALYZE L15 1- RN HIT :      54 TERMS
          D 1-20

FILE 'REGISTRY' ENTERED AT 15:36:24 ON 12 JAN 2009
L21      1 SEA SPE=ON  ABB=ON  464927-84-2
L22      1 SEA SPE=ON  ABB=ON  464927-72-8
          D SCAN L21
          D SCAN L22

FILE 'CAPLUS' ENTERED AT 15:37:02 ON 12 JAN 2009
          D SCAN L1

FILE 'REGISTRY' ENTERED AT 15:37:02 ON 12 JAN 2009
          E LI/ELS
L23      123813 SEA SPE=ON  ABB=ON  LI/ELS

FILE 'CAPLUS' ENTERED AT 15:37:45 ON 12 JAN 2009
L24      382535 SEA SPE=ON  ABB=ON  L23

FILE 'STNGUIDE' ENTERED AT 15:38:51 ON 12 JAN 2009

FILE 'CAPLUS' ENTERED AT 16:00:22 ON 12 JAN 2009
L25      50 SEA SPE=ON  ABB=ON  L15 AND L24
          D SCAN L18

FILE 'REGISTRY' ENTERED AT 16:02:08 ON 12 JAN 2009
          D SCAN L21

FILE 'CAPLUS' ENTERED AT 16:02:08 ON 12 JAN 2009

FILE 'REGISTRY' ENTERED AT 16:02:19 ON 12 JAN 2009
          D SCAN L22

FILE 'CAPLUS' ENTERED AT 16:02:20 ON 12 JAN 2009

FILE 'REGISTRY' ENTERED AT 16:04:33 ON 12 JAN 2009
          D STAT QUE L6
          D QUE L23

FILE 'CAPLUS' ENTERED AT 16:04:34 ON 12 JAN 2009
          D QUE NOS L25
L26      36 SEA SPE=ON  ABB=ON  L25 AND PATENT/DT
L27      0 SEA SPE=ON  ABB=ON  L25 AND REVIEW/DT
L28      14 SEA SPE=ON  ABB=ON  L25 NOT L26
L29      2 SEA SPE=ON  ABB=ON  L28 AND FY<2003
L30      1 SEA SPE=ON  ABB=ON  L26 AND (PD<20020828 OR AD<20020828 OR
          PRD<20020828)
L31      92 SEA SPE=ON  ABB=ON  L15 AND PATENT/DT

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L32      0 SEA SPE=ON  ABB=ON  L15 AND REVIEW/DT
L33      57 SEA SPE=ON  ABB=ON  L15 NOT L31
L34      8 SEA SPE=ON  ABB=ON  L33 AND PY<2003
L35      6 SEA SPE=ON  ABB=ON  L31 AND (PD<20020828 OR AD<20020828 OR
      PRD<20020828)
      D SCAN L1
L36      294335 SEA SPE=ON  ABB=ON  ELECTROLYT?/OBI
L37      26 SEA SPE=ON  ABB=ON  L25 AND L36
      D QUE NOS L34
      D QUE NOS L35
      D QUE L24
L38      14 SEA SPE=ON  ABB=ON  ((L34 OR L35)) OR ((L34 OR L35) AND L24)
      D IBIB ABS HITSTR L38 1-14
      D QUE NOS L37
L39      25 SEA SPE=ON  ABB=ON  L37 NOT L38
      D IBIB ABS HITIND HITSTR L39 1-25

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FILE 'HOME' ENTERED AT 16:11:17 ON 12 JAN 2009

FILE 'REGISTRY' ENTERED AT 16:11:57 ON 12 JAN 2009

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      D QUE NOS L6
L40      STR L3
L41      STR
L42      1 SEA SUB=L6 SSS SAM (L40 AND L41)
      D SCAN
      D STAT QUE L6

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=>